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**Symposium on Preparation for the Study of Medicine\***

**I.—ENGLISH**

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The subject which I am to represent in this discussion of the preparation for the study of medicine is called English. It is, however, not one subject, but several. Courses in English have a very wide range of educational activities and educational aims, and there is interminable discussion among us as to what should be included in the work of an English department. There are many types of English courses taught in our schools and colleges at the present time: English literature, oral English, written English, speech, dramatics, radio announcing, and something which you must have heard a good deal about in recent years, remedial English. Students who need remedial English may be dismissed at once as unlikely prospects for the study of medicine; but the fact that we have such a thing in our schools is worth recalling before we set about defining the educational problem of even a university department of English.

I can, perhaps, best serve your interests by confessing what our problems are at Michigan and how we attempt to deal with them. Conditions vary so greatly from one college to another, that my remarks can hardly claim universal application. There are, however, certain inherent problems in the subject of English which we share with our colleagues in other parts of the country, in fact, with teachers of languages and literatures in all countries and in all ages. Any discussion of our own peculiar problems will therefore, I hope, have some general pertinence.

We do not have at Michigan anything like pre-medic English, nor are we interested in that sort of curricular specialization. Students who aspire to medicine sit in classes with other liberal arts students, and are expected to share in their general interests. Skillful teachers will discover the individual bent of the student, and will encourage the growth of whatever interests he has, professional or liberal; the art of teaching must involve a recognition of the individuality of the student. But skillful teaching is one thing; vocationalized courses in the

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supposedly liberal arts is another; and I, for one, have very little patience with proposals to channel the interests of the student according to his professional ambition. We should in that case get not only pre-medical English, but pre-law English and many other new varieties.

At the present time, the requirement in English for admission to the Medical School is six semester hours of English composition and six of English Literature. These two subjects are so different in nature and aims that they must be discussed one at a time.

English composition is fundamentally self-expression. The nature and the level of the work in such a course depends, therefore, on the ability, training and resources of the self that is to be expressed. English composition may mean anything from an infant's learning to talk to the final polishing of the manuscript of a novel before it goes to a New York publisher. Freshman English falls somewhere between those extremes. Just where the activities of a freshman course in college should be pitched, depends on the level of achievement of the normal high school graduate. In some colleges in this country the standards of admission apparently permit a high level of work in freshman English. Under such happy circumstances the student may turn his attention to such qualities of style as flexibility of sentence structure, subtlety of statement, nice discrimination in the statement of ideas, in general, to distinction in thought and expression. This is, certainly, the ideal of freshman English, and I believe that a generation ago it was more generally approximated than it is today. In the hands of a master teacher, such as the late Dean Briggs of Harvard, freshman English might deserve its general reputation of being one of the very best and most formative courses in the whole college. And there have been many enthusiastic teachers—I have known a fair number myself—who have taught freshman English in this spirit, and who have sought, within the limits of their own abilities, to emulate such teaching as made Dean Briggs a great name.

However, we all know what has happened during the last generation in what an Englishman referred to as the wild career of American education. Last May I visited a high school in this state, and spent a class period observing the pupils in plane geometry. They had been studying geometry almost a year, and in May they were struggling—literally struggling—with the profound and challenging problem of how to inscribe a square in a circle. I give this incident as an illustration of the dilution of knowledge in our secondary curriculum. The situation is parallel in English. Our high school graduates have no real working knowledge of grammar, and what is worse, they have acquired, somehow, a contempt for such trivial study. A charming young girl came into my office a year ago and protested against my suggestion that she go to the dictionary to check her use of a word. She told me in vigorous language that whatever others may mean by the word, this was what she meant by it. In short, we have to teach freshmen who are not equipped with the essential tools for the most elementary analysis of rhetorical problems, and whose own expression, both written and oral, abounds in illiteracy. Naturally, in the day to day contacts

between teachers and students, the problems of syntax and sentence structure, of dangling participles, of ambiguities in subordinate clauses, of spelling, of word meanings, all of these must necessarily defer the consideration of the higher qualities of style and thought, and the picture of Dean Briggs and his Harvard freshmen becomes but a far-off dream. Under such circumstances, priority must be given to the work of eliminating traces of illiteracy, so far as possible, and here at Michigan we frankly address ourselves to that problem. We do not aim to teach writing as a fine art in our freshman English sections.

The next higher aim, after mere correctness, is order and organization in paragraph and essay, and consequential statement, whether in argument or exposition. We, therefore, pay a good deal of attention to outlining and briefing, and to analysis of essays of literary or good journalistic nature. This work is carried over into the second semester, which might properly be described as a course in exposition. But throughout we are trying to train the average student to reach an acceptable competency.

My account would, however, be misleading without mention of two features of our procedure here. At the beginning of the year, we pick out 4 or 5 per cent of our freshmen who show unusual ability from the start, and put them in two special sections under as good instructors as we can give them; these superior students can go their own pace, and their work is probably of genuine college level. But this arrangement affects only fifty students out of a total of nearly twelve hundred. However, at the end of the first semester about 20 per cent of the students who have done distinctly superior work are excused from the college requirement of a second semester of freshman composition. Those who remain through the year thus form a more homogeneous group and training can be continued in those fundamentals which they need.

I should like to return for a moment to the subject of the general theory of teaching English composition. As I have indicated, the course may aim at correction of faults of grammar and style, at accuracy in the use of words, at enrichment of syntactical structures, at training in the use of the dictionary. But, obviously, grammar and rhetoric are, like logic, abstract and formal subjects. Our freshmen are not intellectually ready for abstract and formal subjects; they must learn their grammar and rhetoric in connection with practice in writing; mere analysis would be a waste of time; and, therefore, freshman English means freshman themes, criticism of themes, correction of themes, and a twenty minute private conference with each student every other week. There is no possible way of eliminating this drudgery if we are to do the job well. However, it is of the utmost importance that the written exercises should be something more than rhetorical calisthenics—dull themes on subjects in which the student has no vital interest.

Socrates pointed out, more than two thousand years ago, that rhetoric has no subject matter; and the consequence is the same today as in the Greece of Socrates, that the teacher of rhetoric is inclined to take all subject matter for his province; like the Sophists of old, he tries to teach his students how to express

themselves profoundly on every science and every art, although in recent years the tendency has been to specialize on political and economic science. The young man teaching a freshman English class is often the nearest we can find in our college faculty to a professor of universal learning.

Reputable publishers have in the last few years been putting out volumes of freshman English readings which seem to me more appropriate for the graduate seminar in economics than for freshman English. I deplore this trend, and I believe we are now observing a reaction against it. Nevertheless, I would call your attention to a laudable purpose behind this tendency. The teacher of freshman English who is worth having at all, wants to reach the vital interests of his students, or to develop vital interests in them; he wants his students to feel some urge to speak their minds; he learns very soon from experience that he can teach more about paragraph coherence, proper use of subordinate clauses, and consequential statement if the student is really concerned about the subject of his theme.

We who teach freshman English have, therefore, in all ages sought for good subjects for themes. In the days of the Roman Empire boys declaimed against tyrants. In 1914, we thought the outbreak of the World War gave us an infallible subject; but one student from Massachusetts began his theme by saying he was not interested in the World War, but he was interested in the World's Series, in which the Boston Bees were at that time participating. It is a difficult task we have had assigned to us, and I ask your patience and good will even when we fail. We must try to be more than "comma teachers." We must try to educate the minds of our freshmen as well as discipline their language habits. For all the higher qualities of writing depend on the qualities of mind of the writer, and these cannot be dealt with apart from subject matter.

It is my own personal conviction that many of the inadequacies of the writing of our freshmen would disappear gradually as their education progresses through their college years. I say, would disappear, if the standards set in our freshman courses were insisted on by the rest of the faculty throughout the sophomore, junior and senior years. Unhappily, students generally understand that a passing grade in freshman English henceforth excuses them from further attention to such details. Professors in other subjects who become discouraged with the slovenliness of the written work handed in to them, do not penalize the student who is guilty, but work off their irritation in faculty meeting by making speeches which the student never hears about. One June a few years ago I gave a grade of "fail" to a student in Shakespeare; he came back from New York State to argue two hours with me that I unfairly graded him on his English and not on his knowledge of Shakespeare; he illustrates a general student attitude. In all our institutions the freshman English course needs more moral support from the rest of the faculty.

It seems to be assumed that rhetoric should form the habits of the student, and the rest of the curriculum should form his intelligence. But if the teacher of freshman English finds it necessary and desirable to combine the training in

speech habits with intellectual discipline, the teachers of all other subjects should recognize, on their part, that they are not educating students if they permit them to continue uncriticized to write with slovenliness, weakness, or incoherence. Bad writing in economics, is bad economics; good work in economics is impossible without accurate and resourceful expression, both oral and written.

The second requirement in English for admission to the Medical School is six hours of English literature. This is introductory work, normally coming in the sophomore year. A generation ago this usually meant a survey course, a smattering of selected passages from a hundred writers from Anglo-Saxon times down to about 1900. I have myself conducted a Sophomore class in Roger Ascham, Sir Phillip Sidney and Edmund Spenser in fifty minutes. In its day this survey course was regarded as presenting fundamentals; but it was conceived exclusively as a preparation for more advanced and specialized historical courses in limited periods of English literature, and it offered very little to the student whose main interests lay in other subjects than English. Some time ago we gave up this introductory survey course, and inaugurated a different type of introduction to poetry, prose and drama, with a different conception of what the fundamentals are. We are now content to limit ourselves to half a dozen writers in a semester, and we aim to have the students read their works instead of reading about them.

Our purpose can be stated, briefly, to be to teach the students to read. This purpose is not so simple or so humble as it may appear. A course is not necessarily elementary because it gives attention to fundamentals. We try to get *all* our students to ask that profound and pertinent question which a student once addressed to me, "How do you read a page and get anything out of it?" Too many of our students at the present time are quite unable to restate with precision the content of a paragraph or an essay; their responses are tangential; they mix, without realizing it, their own ideas with those of the author they have read; they sorely need the discipline of following faithfully the author's development of his ideas. But the ability to read literature involves of course many other things; to read poetry is an art, like writing poetry, and proficiency comes only with experience; it involves the study of the nature of poetry, of the personality and ideas of the poet, of the age in which he lived, and a multitude of other possible considerations. This approach to reading is especially appropriate for those students, the large majority, whose special interests lie in other fields, but we are of the opinion that it is also the best for those who intend to specialize in English literature; for the art of reading is certainly basic to all professional study of literature, as well as to the enjoyment of it in our leisure hours.

But I assume that in such a symposium as this you are not satisfied with a mere statement about the excellent methods now followed in my own department, but that you want reopened the prior question as to the value in a modern liberal education, specifically in a liberal education as a preparation for medicine, of any study of literature. After all, in an age of science, what right has this subject to demand the time of the budding scientist?

This question can be answered in many ways, but they all merely vary the time honored controversy about the humanities versus science. I can only restate this controversy in my own way. In this controversy science has been winning steadily and overwhelmingly, and has established its premises in the popular mind so firmly that they have become accepted as mere common sense. Ever since the seventeenth century, the mind of Europe and America has been impressed with the marvelous certainty of science, especially with mathematics, physics and astronomy. Ever since the seventeenth century, some men have endeavored to extend the scope of this area of certainty to psychology, morals, politics, religion, sociology and art, as well as to industry, business and all the activities connected with our creature comforts. The success of science in the last three hundred years has been astounding, and yet we are constantly hearing about the failure of science to solve our problems. Why should this be so? It is because we have been expecting too much of science. In an almost unscientific manner we have jumped at the conclusion that the methods of physics and engineering could be applied with equal certainty to all the phenomena of the universe, and that if they do not achieve this enormous success we have a right to complain.

The late James Harvey Robinson published a book twenty years ago which was widely read and universally accepted as gospel. The gist of his message was that if we would only apply scientific method with the same rigor and impartiality to the social sciences and morals as we do in the purely physical sciences, we could solve all our distressing problems; any refusal to accept his program was said to be benighted medievalism. I believe we are more reluctant in 1940 to believe that the management of the life of man in society is a purely engineering operation. We are beginning to hear that the certainty of physical science is much modified when we come to biological science, to medicine and to education; we are beginning to appreciate that the social sciences and the arts require mental processes that are not called for in the physics laboratory, at least not within the intellectual scope of the scientific problem studied. You must have heard the remark, widely quoted last year, that an astronomer can know exactly where all the stars in the heavens will be at 11 o'clock on a certain night; but he cannot know with anything like the same certainty where his daughter will be at the same hour. To calculate her orbit is beyond his professional attainments, although it might appear a simple matter to his unscientific wife. I have been told that Mr. Einstein tried to learn to drive a motor car, but gave up, saying that this operation requires more of the human mind than the human mind can perform. He is certainly correct, except for the implication that we drive motor cars with our minds, in the sense that we conduct laboratory experiments with our minds. Driving is an art. Playing the piano is an art, and no mechanical player can compete with that living touch which up to the present moment remains a mystery. If we compare the best of our marvelous airplanes with the flight of a hummingbird, a starling, a seagull, we must be struck by the vast difference between the best achievements of physical science and the most ordinary performance of the living organism.

Now, literature is one of the arts, and the arts are products of living organisms. They are part of our language. They enable us to communicate experiences, and they also enable us to have experiences. In both these ways they educate us. In both ways they serve deep and obscure purposes that are beyond scientific statement. We say that literature has style, and we mean simply that it has modes and capacities of expression that are not scientific. Consider a simple illustration. In 1917 the people of the United States were thrilled by the report from France that General Pershing had, on his arrival, gone to the grave of Lafayette and laid on it a wreath with the words, "Lafayette, we are here." This was certainly more than a statement of fact. Here are four simple words, that can mean only one thing, no matter how we order them. But try to rearrange them. "Here we are, Lafayette." The remark becomes jaunty; its solemnity and nobility are gone. All the other possible rearrangements become even worse. I would not pretend that this famous sentence, which, by the way, was not uttered by Pershing, but was the coinage of a newspaper reporter, I would not pretend that it is a specimen of great literature. But it illustrates the difference between scientific statement and literary statement. Art belongs to the realm of life, it expresses life, it is the instrument of life, and even when we speak a living language in our daily life, we are, in our humble way, artists.

I have heard a great deal about hydraulic transmission, without which I understand that our great ocean liners would be shivered to pieces by the vibration of their own power. I see in the advertising columns that the same principle is now being applied to motor cars. It is hailed as a great forward step in the transmission of power. I suppose the old-fashioned mode of transmission might be called cogwheel transmission, which by comparison is inflexible and rigid. Now, if I may draw an analogy here, the modern tendency to reduce the humanities to exact science reverses the step by which we have made progress in the transmission of power. We think we should educate the mind to work with cogwheel precision, and what we get is a mind that works with cogwheel rigidity.

As educators we are gradually losing the skill and the art of educating supple minds and wise minds. We are developing that curious modern faith that the mechanical player piano is capable of greater precision than the fingers of the human artist. I am not speaking literally of the player piano, but of its metaphorical equivalent in education and life. Bernard Shaw is a good representative of what we call the modern temper, and we have all enjoyed the sparkle of his comedy; but the insides of his characters are full of wires and pulleys; as one of my former teachers once put it, Bernard Shaw is possessed of remarkably acute sight, but no insight.

In the seventeenth century the great religious writer, Blaise Pascal, who was also one of the greatest mathematicians in a century of mathematical genius, drew a distinction between *l'esprit de géométrie* and *l'esprit de finesse*. He certainly had no desire to choose between these gifts of human nature, to eliminate either the one or the other, but he contended that only to the *esprit de finesse* are

the profundities of human nature revealed. Literature is one of the instruments of this *esprit de finesse*, and that is its chief importance in a program of education for humane living. The study of literature is not primarily or essentially concerned with the esoteric. We live poetry every day, and our ordinary speech is full of expressions which attempt the same purposes as poetical language. The function of the arts is to form, to discipline, to give character and distinction to these ineradicable impulses of human nature. The art of literature is important in our education for the fundamental reason that life itself is the highest art and includes all the others.

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### The Psychopath

That man who taught the birds to sing  
 Now fiddles all day long;  
 He first picks at the fiddlestring,  
 And then he tunes a song.  
 Psychologists, psychiatrists,  
 Neurologists, these three;  
 And analysts, and quackerists,  
 And whate'er "ists" have we,  
 Have fussed and fumed and soiled their plumes  
 By fain resorting to  
 The slinging at each others domes  
 Of naughty words; mind you  
 Interns and student doctors too,  
 At times may fuss and dicker;  
 The layman, even nurses do  
 Some sniff, sneer, and snicker.  
 Why shouldn't they when men renowned  
 Will sometimes disagree  
 On why the brain ticks, minds unsound,  
 And why the mystery.  
 Meanwhile God's masterpiece remains  
 A warped mentality.  
 With logic fled reason disdains  
 His personality.

W. L. S.

## II.—CHEMISTRY

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It must be evident to all who have been following either popular or scientific chemical literature that there has been during the past few years a decided renewal of interest in one of the oldest fields of chemistry. I refer to the applications of chemistry to medicine. For some time following the early part of the sixteenth century, chemistry and medicine were practically synonymous. Paracelsus, though a professor of medicine, maintained that the object of chemistry was to make medicine, not gold. He maintained that the fluids and tissues of the body are chemical compounds, that the body processes are chemical reactions, and sickness results when these reactions become abnormal, and the normal condition can be restored by the use of proper chemicals. This statement was submitted about four hundred years ago, yet it stands today as a fairly satisfactory expression of the rapidly growing view of many scientific workers in the borderline field between medicine and chemistry.

This intimate relation between chemistry and medicine did not last. Chemistry soon assumed the nature of a more exact and quantitative science, and began to serve the industries, while medicine developed largely along the lines of anatomy and biology and became primarily empirical.

A fundamentally different point of view was introduced into medicine by Pasteur. Some authorities have stated that the scientific development of medicine dates from his work. During the last twenty-five years the close association between chemistry and medicine has again been rapidly developing. During that period, the assistance which chemistry has rendered to medicine is one of the outstanding developments in science.

Five years ago, Professor Harry W. Holmes of Oberlin College discussed the topic on which I am to speak. He said, "The medical profession has been accused of being slow to appreciate the chemist's discoveries, in spite of the significant fact that Pasteur was a chemist. If there is any cause for this criticism, it must be due to lack of time for adequate training in chemistry in the strenuous life of medical and premedical students." In the past five years I believe that the medical profession has acquired a distinctly increased appreciation of the part which the chemist has played in the progress of medicine, and has evinced a desire for a greater knowledge of this branch of science. But the same difficulty is still present—where, in the already crowded curriculum, can a place be found for additional training in chemistry? It can be found, to be sure, in graduate medical study, but most medical graduates have neither the time nor the funds for further study. It becomes, therefore, a matter of compromise on the inclusion of those subjects which seem most valuable to the prospective physician. There

will, of course, be considerable difference of opinion here, as evidenced by the variation in requirements for premedical students in different medical schools. It is, therefore, desirable that this subject be opened to discussion.

The majority of premedical students probably cannot take a four year college major in chemistry, in spite of the desirability of such a program. But, if we are to set up minimum requirements, let us urge the great advantage and desirability of further preparation, and let us try to persuade the medical profession to increase somewhat these requirements. Eight years ago, the American Chemical Society suggested minimum premedical requirements for chemistry amounting to nineteen semester hours. Today I feel sure that more preparation would be advised.

#### GENERAL CHEMISTRY AND QUALITATIVE ANALYSIS

The same course in general chemistry is usually given to all classes of students. Part of the second semester is commonly devoted to qualitative analysis. A separate course in qualitative analysis is highly desirable and is given in most colleges. This is the proper place to teach the properties and reactions of the common elements and their compounds and to introduce a good deal of physical chemistry as applied to reactions in solutions. The purpose of such a course is not to teach students to analyze mixtures. Forty years ago emphasis was laid on this, but now qualitative analysis is taught from the point of view of physical chemistry. It used to be largely a collection of facts, but now it gives excellent training in careful observation and scientific reasoning which are so essential in subsequent medical practice.

#### QUANTITATIVE ANALYSIS

It has been truthfully said that a science has not progressed far until quantitative methods can be applied to it. On this basis medicine has made great strides. To quote from Dr. Hirschfelder in 1925:

"A little over twenty years ago when I graduated from the Johns Hopkins Medical School a thoroughly up-to-date physician could carry most of his apparatus around in his coat pockets. How the most highbrow of us would have laughed if some visionary had told us that before we were middle aged, every consultant in medicine would have in his office a technician who was trained in refinements of quantitative analysis equal to that of the best analyst, and that the diagnosis and treatment would depend more upon the findings of this analyst, who had never seen the patient, than upon the trained eye, ear, and finger of the physician at the bedside! And yet exactly this has come to pass! It is the practice of medicine today!

"Quantitative analysis, especially volumetric analysis, is absolutely necessary for the physician. We cannot diagnose and treat patients who have any disease of the stomach without careful quantitative analysis of the stomach contents; and the entire treatment of a patient suffering from diabetes today depends upon determining the amount of sugar in his blood by a method so accurate that it was impossible twenty years ago. Even the country doctor of today must be well versed in quantitative analysis."

In the fifteen years that have elapsed since that time, the application of quantitative methods has been greatly extended. The extensive use of vitamins

and of new remedies, such as sulfanilamide, which require the analysis of body fluids to determine proper dosage, and the more frequent use of clinical analyses have greatly increased the use of quantitative methods in the practice of medicine. It may be argued that the physician does not usually perform the analyses but merely interprets them. But even so, he is interested in knowing that they are properly and accurately performed, and of this he is much better able to judge if he has had some training in quantitative analysis. An astonishing number of cases have been discovered in which clinical technicians were utterly incompetent and the lives of patients were endangered by inaccurate data. The physician should be able to recognize such incompetency.

The purpose of a course in elementary quantitative analysis is, however, not to turn out a person skilled in this art, as some of the arguments against it would seem to indicate. It aims to do two things: first, to teach nicety of manipulation and accuracy, which is desirable in any field of education but particularly necessary for the physician; and second, to continue the training, begun in qualitative analysis, in the physical chemistry of reactions in solutions. In earlier days, a course in quantitative analysis was largely a cook book course in following laboratory directions. In present day courses in our better colleges, the lectures and discussions deal primarily with theory. The textbooks most widely used devote less than one-half their pages to laboratory procedures. The amount of laboratory work should be sufficient to enable the student to acquire the proper technique, for this cannot be learned from a book or by observation, but a large amount of time spent in the laboratory is not essential. The technique learned in this course will be needed later in physiological and biochemistry. One semester of quantitative drill is the minimum that should be permitted and an additional semester should be recommended.

Much research in quantitative methods is being done in our own medical college (for example, in the determination of vitamin B<sub>1</sub>). This is true in many other colleges. How can you expect important work of this kind to be carried on if the men who will be in charge of it have had no training in quantitative analysis?

To me it is a deplorable fact that in some of our good medical schools this course is not required for premedical students. Perhaps, it is due to a misunderstanding of its content and purpose, perhaps to a recollection of the way in which it was given many years ago. But with present tendencies in medicine it seems more and more essential.

#### ORGANIC CHEMISTRY

No one will deny that this subject is most fundamental to medicine. One semester, with lectures and two laboratory periods per week seems hardly sufficient. A year would be better. The body is composed largely of organic materials. Foods, vitamins, hormones, anesthetics, antiseptics and most medicines are organic compounds. Special short courses are possible in many colleges but not in all.

Special emphasis will be laid on the carbohydrates, fats and proteins, and attention given to enzymes, hormones and vitamins. The synthesis of a hormone, for example, is an instructive study in organic reactions, and of interest to others than premedical students. Organic chemistry is a complex subject and on that account the contents of a course must be chosen wisely. It can be made very interesting if this is done.

#### PHYSICAL CHEMISTRY

Under this heading colloid chemistry is commonly included. This field of chemistry, which has long been important in the study of medicine, is now almost, if not quite, indispensable. In looking over a modern textbook on physiology, one is struck by the number of physicochemical topics it contains. Much attention is devoted to the colloidal state, to energetics, osmotic pressure, theory of solutions and of acid-base reactions, catalysis, surface tension, oxidation potential, etc. It would seem difficult or impossible for a student to study such a course intelligently without some preparation in physical chemistry. To be sure, as has already been pointed out, some of this will have been included in properly taught courses in qualitative and quantitative analysis, but many topics cannot even be touched on except in a separate course. In visiting a physiological laboratory, I was impressed by the large amount of electrochemical apparatus it contained—galvanometers, potentiometers, apparatus for measurement of pH, etc. In fact it seemed better equipped in expensive instruments than our own electrochemical laboratory.

I might point out some of the reasons for the importance of physical chemistry. Living cells can exist only in a very limited range of hydrogen ion concentration. Medical literature and textbooks are filled with references to pH. No student can read these intelligently without a fair understanding of the theory of pH and its method of determination. Because of the close relation between normal and pathological conditions and pH, this, as a tool for detecting such differences, is taking its place beside the thermometer in modern diagnosis.

Since body functions and the very life of cells depend to such a marked degree on the close regulation of pH, the theory and application of buffers assume great importance. The human body is made up mostly of colloidal materials and electrolytes; cells themselves both contain and are bathed in colloids and electrolytes. Body processes consist largely in interactions between colloids and electrolytes. The very existence of these materials in the colloidal state depends on the presence of electrical charges on the colloidal particles. The behavior of the particles depends on the sign and magnitude of the electric charges. These latter depend on the nature of the electrolytic system in which they exist. This whole arrangement is very delicately balanced and a disturbance of this balance results in pathological conditions.

From another point of view the body is composed of various orderly arrangements of individual cells which means that there are limitless interfaces of various

kinds, the most important of which is that between the cell wall and the electrolytic solutions within and without the cell. The problems of biology and medicine are most intimately connected with these surface phenomena. This sort of material is usually considered under such headings as interfacial potentials, electrical double layer, electrokinetics, etc.

A study of the electrical properties of the body under a variety of situations is rapidly coming to be a means of detecting abnormal conditions. One of the best modern methods for detecting the condition of the heart is to study the nature of the electrical currents it sets up.

In view of these facts, and with the realization that modern explanations of both normal and pathological conditions are rapidly turning to electrochemical, colloidal and other physicochemical methods and tools, it is clearly evident that the medical man of the future will find himself under a tremendous handicap if he is not familiar with the fundamental concepts and tools of the physical chemist, at least to the extent to which they are presented in a brief, elementary, non-mathematical course in physical chemistry.

If a course in physical chemistry is not possible, I would suggest that in the last two years of college the student be advised to read short elementary texts on this subject, especially on colloid chemistry and also biochemistry. When one considers the statements made above, the desirability of such reading is apparent.

In his undergraduate work the student should become acquainted with chemical journals. *Chemical Abstracts* contains sections devoted to topics even more important to the medical profession than to the chemist. The student should also know something of the nature of the material included in other chemical journals, such as the *Journal of the American Chemical Society*, *Journal of Biological Chemistry*, *Journal of Chemical Education*, and *Chemical Reviews*. A study of some particular paper in connection with his course work would be helpful in acquainting him with the methods of research.

The human body is a complex laboratory in which a great many chemical reactions are constantly taking place. These follow physicochemical laws. To study them, we must use quantitative methods and physicochemical apparatus. Amazing organic syntheses are being effected in the body. Many of these can be accomplished in the laboratory but in an infinitely longer series of processes. The chemist is constantly making available new vitamins and hormones. But not only is he trying to produce the products which the body manufactures, he is now preparing medicines of great potency and great value. The number of lives already saved by sulfanilamide and its derivatives must be an impressive figure. I believe that the medical profession is most appreciative of what the chemist is doing, and I know that the chemist is cognizant of the tremendous assistance of his medical brethren in adapting his products to the alleviation of human suffering and in pointing the way to further successes.

So far I have considered only the undergraduate training in chemistry. It is apparent that in most cases it is necessary to omit certain courses which are

highly desirable and useful in the study of medicine. Some men will have the enthusiasm and the financial support to include a year or more of graduate work, when they become conscious of the advantages of this extra training. They should be given every encouragement. There will be a very few men who, after receiving the degree of Ph.D. in Chemistry, with a minor in some related science, wish to take up the study of medicine. I know of one or two who are now doing so. It means at least eight years of study. Of them we can expect much. With medicine becoming more and more dependent on chemistry, they have a fascinating future. With such magnificent training it is idle to speculate on their possible accomplishments, but to them medicine will owe some of its great advances. The great advances in all fields of science are made by a small number of brilliant men. We must not fail to give them encouragement and support. But these discoveries in medicine must be made available to the people through the efforts of the physician, and it is his training with which we are primarily concerned.

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### Confucius Redivivus

He who knows not—and—yet knows not  
That he knows not—is a fool.  
Shun him—for in truth you cannot  
Aid his mind by art or rule.

He who knows—and—strangely knows not  
That he knows—is fast asleep.  
Wake him—from his mental midnight,  
He's a worthy friend to keep.

He who knows not—and—yet knows that  
He knows not—longs to be taught.  
Teach him—'tis the gods who say that  
Talent grows with use and thought.

He who knows—and—knows that he knows—  
Is wise and should be followed.  
His counsel will—because he knows—  
Be sought for and considered.

H. A.

## III.—BIOLOGY AND OTHER CONSIDERATIONS

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During the half century, since the organization of the Association of American Medical Colleges, most of the questions dealt with at this meeting have undoubtedly been considered at various times. However, in no field of education has an ideal condition been reached when no further progress is possible. New situations are also constantly arising, requiring revision of methods and adjustment of procedure and attack. It is, therefore, desirable that an occasional census be taken, and new and different points of view solicited.

Much concerted attention has been given in times past to medical education as such. The result is that curricula have been, to a great extent, standardized all over the country. The basic idea has been to formulate a program of study that will give a student the best possible training for the medical profession and make him a valuable member of it.

With the extension of knowledge in the medical sciences, the programs of study have become more and more crowded. Extra years have been added and even then certain important disciplines must be frequently omitted, such as endocrinology, parasitology, genetics, public health, history of medicine and many others. The time it takes to become a doctor at present makes it undesirable to lengthen the schedule further. An alternative would be to shorten some of the courses given so as to give the student more time to digest the things he learns, and to pursue certain electives for which there is now no opportunity. This would also allow for some extracurricular cultural development for which, at present, there is no time. I believe that many of the courses offered and required could in some cases be shortened considerably by the omission of insignificant details and by greater emphasis on basic principles and fundamental facts.

My chief topic, and that of others on this program, is that of premedical training. I am somewhat familiar with the methods employed in the selection of students for admission to medical schools, and I also know something about the various kinds of advice handed out to premedical students by various members of the faculties, and by his fellow students and others, as to what his training should be. Views are conflicting and the poor student scarcely knows where to turn. As one student expressed it, "One almost wonders why he doesn't crack under the strain and start jumping around like a neurotic rat."

There was a time within my experience as a teacher in premedical subjects when practically every ambitious student could become a doctor if he so desired. There was no elaborate machinery set up for the elimination of the unfit. The survival was almost a hundred per cent since very few were dropped along the way. There seemed to be no over-supply of doctors and the medical schedules were not overcrowded. Students were not always of the best quality but, in

general, they were not much inferior to the general run of those admitted today. They measured up fully in genuine interest, true enthusiasm, sincere purpose and devotion to their work. Some thirty years ago I gave a course in what was called "cat anatomy." It was not a course primarily for premedical students but designed more as a thorough foundation course in mammalian anatomy for students in zoology. However, most of the students in the class were premedics. Some of them are now on medical staffs in various parts of the country. There was a real enthusiasm shown by the students in this class which I have failed to find in the larger classes of more recent years. Even hunting cats for the laboratory became a real sport to which our own Dean can testify. I am sure he remembers the time when his cat threw a fit inside of his new travelling bag.

Students in this course, with few exceptions, entered on a medical career. Dr. Streeter, who was then professor of anatomy, came annually to select his "hoisting gang" from this little group. This gang was responsible for bringing the cadavers to the dissecting room and, in return, they had their choice of specimens. Only the best students were selected for this privileged duty and it was considered a singular honor to be chosen for this job.

At present, admission to medical study is a matter of the most rigid selection and if carried out in the right way it should result in a choice of students of real superior qualifications. This certainly should be so in the better medical schools where often as few as one out of ten applicants are admitted. The other nine may, of course, succeed in gaining admission to one or the other of the ten or twenty additional schools to which they have applied. Although I have no data to present, I have been told that most of the applicants finally gain admission somewhere and if that is true, the medical profession, as a whole, is not particularly benefitted by the entrance hurdles.

I know, however, that a great number of those who once planned to take up medical work, and who have devoted a considerable time in preparing for it, have not succeeded in gaining admission to medical study and in most cases rightly so because they did not possess the necessary qualifications for this type of work; and a more disappointed, dejected and disconsolate group of students one scarcely ever finds. In groping for some other possible field, they often land in our graduate schools and try to redeem as much as possible of their training by going into some cognate line of work.

One cannot but feel that in the case of such students professional guidance should have been supplied early in their college work or possibly still earlier by competent men who might have given a more proper direction to their work in the selection of a future career. I realize fully the difficulties involved in mapping a student's future, but nothing can be worse than an entire lack of direction as is practically the case at present.

A student's motive in selecting medicine as his future work varies, of course, between wide limits. Variation is also great as to ambition and purpose, intellectual ability, character and personality, sincerity of purpose, scholarliness and as to numerous other traits found in human beings. Selection of suitable appli-

cants, therefore, becomes a very difficult task, and one that should probably be given much more attention than it has at present. Often the criteria used in selection fail to indicate a student's true worth, otherwise there should be fewer failures than there are among medical students where selection appears so rigid. I have often been greatly surprised at the admission of some students and the rejection of others.

Among the general criteria used in selection are: the applicant's accomplishments in courses, the result of his aptitude test, and the proper completion of certain prescribed courses. In addition, there usually must be recommendations from a couple of his instructors and, whenever possible, he must have an interview with the admission officers, during which time he is questioned regarding his general outlook, interest and ambition and when his personality, appearance and other characteristics are observed.

There are certain weaknesses in all these procedures. Aptitude tests tell nothing about a student's character and finer cultural qualities. They do present a picture of his ability to handle certain facts relating to his foundation training. Letters of recommendation fail in their purpose for several reasons. I have written hundreds of them and many of those whom I have recommended highly, and felt I could support unreservedly, have been turned down and many whom I could support only halfheartedly have been admitted. The student should not be asked to seek his own letters of recommendation. A true picture of his qualifications cannot be gained when letters come only from those who he thinks will speak well of him. Rather, he should be asked to supply a number of names of instructors who know him and the admission officer should then seek information wherever he thinks best. If a student does not know from whom letters come, they are apt to be more truthful with regard to his true qualifications.

With regard to personal interviews, they are apt to be too brief and non-critical when conducted by men pressed for time and interested in other things. Impressions gained in this way are usually hasty and unreliable.

A student's record is important. Brains do count but brains and character do not always go together. One of my recent students had an outstanding scholarship record and was honored by election to both Phi Kappa Phi and Phi Beta Kappa, but he had a streak of dishonesty in his character that came out only through constant contact with him in laboratory work. I suppose he is a star student now in one of our better medical schools. Maybe, in time, he will be found out there, too.

I should like to propose a closer relationship between the premedical and medical faculties. Responsibilities with regard to the future of the medical profession rest with both. There should be no essential break in a student's training in going from one school to the other. The transition should be smooth and the readjustment necessary should be negligible. For the student who has the proper aptitude there should be no difficult hurdles. Training for the profession should begin early and the foundation work should be thorough. Character building should be included and purely cultural fields should not be neglected. He should begin early to view the profession from its broader aspects.

So long as there is no proper guidance in these early stages of a student's development he is apt to flounder along without a proper viewpoint and with distorted ideas regarding program and training. I should like to suggest for all larger institutions the appointment of a guidance committee made up of a personnel representing both the undergraduate and the medical schools, whose purpose would be to give the necessary guidance to prospective doctors. It would be the purpose of such a committee to learn as much as possible about the student's background, his special abilities, his character and other traits, and with these facts in hand to discourage those who lacked the necessary qualifications and to encourage those who might seem properly qualified and to assist them in the selection of a proper program.

The idea is sometimes expressed that a student should get all the culture he can before he takes up his special medical training. The claim is that the loaded program of the medical school precludes study in cultural fields. This implies, of course, that the cultural development of a student stops when he begins his medical work. It means also that cultural training, in the minds of some people, apparently is gotten only from class work. It is not difficult to discover the fallacy of such an idea. Remove a person from five to eight years from contacts outside of his routine, and he is not likely to return to any former interest, special diversion or hobby that he may once have had. But there is another point in this connection that should be mentioned. No one can say that medicine, as we think of it today, is a narrow field. The great variety of subject matter connected with medicine should not make it essential that one seek diversion or culture outside of it. Medicine should include a study of man in all his manifestations, his structure, his functional activities, his mental workings, his heredity, his development, his social relationships, his economic situation as well as his common health problems.

A student should gain a certain amount of practical experience before he enters on medical work. This might include work in hospitals, in a doctor's office, in a boys' or girls' camp as adviser, or in any other similar pursuit where he may be brought in contact with humanity under varying conditions. A student who seeks such contacts is approaching his future profession with a proper attitude. He should not be discouraged by statements that he will see enough of that sort of thing in his future medical work. Too many students postpone practical experience until they are too full of book knowledge to appreciate their own environment. It would also be of some advantage if a prospective doctor obtained some training in some manipulative skill by which he would gain dexterity in the use of his hands.

Certain tools and equipment are necessary for a successful medical career. Some of these a student should acquire before he actually enters on his real training. A good knowledge of English and an ability to use it, both in writing and in speech, is necessary and not debatable.

A knowledge of Latin may be desirable and is undoubtedly of some value in connection with the acquisition of a necessary technical vocabulary but one year of the language would be of slight help. With regard to German and French,

many of us who are doing work in advanced fields will consider them invaluable as tools but to the general medical student a slight training in these languages is of doubtful value. A very small percentage of our doctors ever go outside of English in their future study and it is not advisable that for the sake of a few that may need German or French in future research that all should be required to take them. There is, of course, some cultural value in any language but there are other cultural pursuits that would profit one more and would give better returns for the time spent.

Some foundation work in psychology, I should consider quite necessary. It should introduce the student to the normal operation of the human mind and should lead into such courses as neurology, neuropathology, psychiatry. It should also lead to a better understanding of human nature and normal human behavior, factors which no doctor can afford to ignore.

Chemistry is absolutely essential. There are few branches in medicine that do not require a good foundation in this discipline. One need mention only a few of them, such as bacteriology, biological chemistry, internal medicine, nutrition, pediatrics, pharmacology, materia medica, therapeutics, physiology, endocrinology and others. The present premedical requirements are certainly not excessive. Further courses in physical chemistry and the chemistry of colloids should be of considerable value.

Some knowledge of physics is necessary but the courses given are not always well adapted for their intended purpose as regards premedical students. A brief general course would probably be sufficient and might be followed by some special work in electricity, x-ray and radium. A fair knowledge of mathematics is also desirable.

Sociology, or a course in social relations, should be included in a premedical curriculum. It should include a study of poverty and dependency, criminology, family relations, et cetera. A student should be equipped with a sympathetic understanding and attitude toward his social obligations and should be prepared to meet the various responsibilities in his future community.

With regard to my own field, biology, I can speak with much fervor and feeling. Without a thorough foundation in this discipline it is difficult to understand how one can have the proper approach to medicine. Courses in biology are not mere coaching courses in medical preparation. They aim to give a student an understanding of life and of living things. They are not aimed especially at premedical training. However, it is true that the majority of our students in certain branches of our work are premedics. Most of the courses are elective. Only eight hours are required here to complete the medical entrance requirements, but most of the students take more than that, including such courses as embryology, comparative anatomy, histology, parasitology, microtechnique, and others, and we have failed to find a student, after he had begun his medical work, who thought his time was wasted on these subjects. There is in the nature of the work some duplication but there can be no harm in this when presentation is from different points of view.

About a year ago there appeared in *Science* a short article by Dr. Harold S. Diehl, Dean of the Division of Medical Sciences at the University of Minnesota, presenting some statistics purporting to show from grades made by medical students that those who had not taken previous courses in physiology, embryology, comparative anatomy, and histology did as well, or almost as well, as those who had had such courses in their premedical work. One thing the article does not tell us is what the students, who came better prepared, did with their time. If it was used in the pursuit of other cultural disciplines for which the ordinary medical student has no time, the previous training was surely justified.

There are few, if any, who would claim that the various subjects mentioned as essential in premedical training, have no or little cultural value. No subjects can claim a monopoly on culture. It cannot be considered as confined to the new and old humanities. Why should it be necessary, therefore, to go afield in search of new pastures when there is more than enough green grass along the medical path? Music, art and literature are available to those who long for them and they will furnish valuable recreation when one is weary of other work. Culture is not always, and surely not necessarily, gained only from books and classes. Communion with one's fellow men is often the best polisher and may supply the strongest stimulus to seek knowledge where it may be had.

I repeat that the medical schedule should allow a student some time for the cultivation of some outside avocation. He should not be subject to a schedule that always leaves him breathless and exhausted at the end of a long day. Maybe no great loss to medical science would result if a few details in a course were omitted, and more emphasis placed on general principles and fundamental concepts. Too many grinding details stunt the mental development of a student.

There is still one field which I have left to the end, namely, philosophy. A student should gain some realization of life as a whole and of his place in the living system. He should learn to think clearly and logically, to understand the fundamental bases of society and his moral relation to it, to appreciate the religious side of human nature, and to recognize and value the finer things in life. Only then can he become a useful citizen in his community and of aid and comfort to suffering mankind.

## IV.—HISTORY

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The topic assigned to me, not by my choice, "The Importance of History to the Medical Student," does give me a difficult assignment, because, quite frankly, as regards the technique of medicine, history has less to offer than the majority of the subjects in the curriculum. Practically all the natural sciences, with the exception of astronomy, bear directly on medicine and give very considerable aid to the physician. He can hardly know too much biology or psychology. Even the social studies, so called, such as economics, politics, sociology, have a very direct reference to social medicine, sanitation, preventive medicine, any phase of medicine that has a collective aspect.

The modern languages are obviously useful as opening to the physician the recent researches, not yet translated into English, of European scholars not using the English language as their native tongue, particularly, French and German. Even ancient languages underlie a large portion, perhaps the major portion, of the medical vocabulary and throw light on the Latin and Greek elements in the medical terminology.

But, frankly, one could be a competent practicing physician with very little knowledge of history, and, what is more, history is one of the subjects which can be learned without taking classes in it, one of the few subjects. One cannot learn a language from books; the pronunciation is invariably peculiar in such cases. The ear can catch, but the eye cannot convey to the mind, correct pronunciation. One cannot, unless one is an extraordinary genius, learn mathematics or the natural sciences from the textbook alone. The explanations of an instructor and, in the case of many sciences, practice in the laboratory, are indispensable, but what is true of languages and most of the sciences is not true of literature or history. It is all in the books, and if he can and will read the right books, a man can be very well self-educated in history. What then, all this being conceded, is the place of history in medical education, for I do believe that it has a place?

First, on the narrower side, I may refer to medical history, and then a much broader aspect, history as any citizen, whether he be a physician or not, might need it.

It is perfectly true that the physician is concerned with the latest discoveries and experiments, and not with the oldest traditions. If he tried to cure men according to the teaching of Hippocrates, probably the results would be unsatisfactory. Just as a man may be a very good chemist and quite unaware of the history of chemistry, so he may be a competent physician and quite unaware of the history of medicine, at least up to the last ten or twenty years. Naturally,

he will have to be abreast of recent developments of medicine, but that is scarcely a question of history.

Nevertheless, it is not merely the history of medicine as such for which I would make a plea, but the place that medicine has occupied in general history. For many years I have thought that, perhaps, the greatest criticism that might be offered of history as it is written and as it is taught is the inadequate space that is given to the history of science and, in especial, of medical science. For instance, the most important thing that has happened in the last two or three hundred years is not, in my opinion, any of the great political changes or revolutions, such, for example, as the French Revolution or the American Revolution or the first World War or the second World War. Those things have their importance, but, after all, war is an occasional and politics a partial aspect of human life. There are many long years when we are happy to be able to forget both war and politics, though this year is not one of them. Nor is it even, as scientists and historians who see more deeply usually say, the industrial revolution. It is, indeed, far more important, from the standpoint of everyday human life, that we use machines, that we gather in cities, that we have transformed humanity from a rural to an urban existence, than that we have had this revolution or that, or whether we have had this war or that. The industrialization of humanity is much more important than any political change that has taken place, but even that I would not put first.

The most important thing that has happened in the whole of modern times is what might be called the medical revolution. Surely, whether people live under kings, presidents, or dictators, whether they live in the country or work in the town is not of more importance than whether they live or die, and the fact that the development of medicine in civilized nations has doubled the length of human life within a very short space of years is, perhaps, the most important thing that has happened within the purview of history. And yet it gets only an occasional mention, a rare, isolated paragraph, from the conventional histories.

The history of what medicine has done for the world, how it has revolutionized human life, the consequences, the implications flowing from the medical discoveries; for instance, the prolongation of human life, attached as it is to a fall in the birth rate, partly as cause, partly as effect, partly as a concomitant variation, may have the combined effect of weighting the population at the upper end of the scale. Never was there a time in history when there were so many elderly people and so few children, a fact with its bearing on everyone's occupation and everyone's life. I should like every physician and every other person to have some sense, some feeling of the importance of that.

However, that is a specialized and limited phase of history, and one that, as I have said, to my regret is very little taught or at least very little emphasized. Taking history in general, apart from the history of medicine, what importance has it to the future physician? Merely, I think, the same importance that it has

to everyone. It is part of the intellectual background of the entire race. It runs through everyone's occupation, no more for the physician than for the lawyer, but assuredly, no less; no more for the physician than for the business man, but assuredly no less.

We live in a world, in some respects unfortunately, in which it is no longer possible for anyone, whatever his occupation or interest may be, to withdraw from that world into any sort of ivory tower. The world is always with us, clamoring about us. It forces itself on our attention. There were many physicians in Germany before the Nazi revolution who disdained all politics. They said that they would give all their attention merely to the service of humanity by the discovery and application of medical truth, they wouldn't have time to bother with questions of the state. Well, they have had a very rude awakening and surprise. Many of them have fallen under suspicion, caused or causeless, it matters not, and have been imprisoned or driven into exile. Others have been caught by the great war, and their attention and effort has been forced into the service of the army, the care of wounded men on the field of battle. In short, they have tried to isolate themselves in a laboratory, whether ivory or not, and along came the tornado just the same, and whirled them into the world.

The same is true in other ways of people in countries less afflicted than Germany. We have in the United States escaped both terrorism and war thus far, but in the United States we have had ten years of prolonged and profound economic depression, which has changed the life and altered the duties, of every physician in the land. Now, that is a historical fact. It dates back to other historical facts. It is part of the historical chain of cause and effect, in this depression as much as the French Revolution or the Protestant Reformation or any other historical movement. One of the greatest fallacies with regard to history is to regard it as something that *has happened*. History is something that *is happening*. History didn't stop operating. It is still going on at the present moment, and the only way we can analyze or discover the causes of our present discontent, whether they be political, military, economic or any other, is by tracing their historical causes and origins. It is a matter of common citizenship. It is a matter that has reached and affected every one of us.

Many of you, doubtless, who have had some experience, let us say, with courses on geology or evolution have noticed in the freshman mind, unformulated, of course—merely to formulate it is to show it is an absurdity—as a kind of background idea, the notion that geology is something that had happened and now the world is fixed and established, there were all these changes in the past but geology isn't going on now; or that evolution is something that has happened, and then evolution resulted in the world we find about us, and evolution has somehow stopped.

Very similar, and much more common, and much more serious, because the changes are more rapid, is that same notion about history. We are not only historians, students of history; we are historical characters, and we are in the

midst of the flux or process of human change which we call history. So history, whatever else it is, can never be remote from human interests, because history simply is the sum of human interests, and nothing else whatever. It is, as the psychologists say, human behavior, but it is far less theoretical than psychology. Psychology very largely is human behavior as one might expect it to be. History is human behavior as it actually *is*. It is the largest laboratory on earth, the experiment in psychology going on all the time, all about us.

It is the same way with the other social studies. History is the least abstract, the most concrete and realistic of them all. Politics, for example, is a kind of abstraction from history. It is the science of how a student of history thinks governmental institutions work or should work. It is a kind of cross-section taken from the living tree of history. But political history is not the theory of how governmental institutions work; it is the story of how they actually have worked and are working. Again, economics is the theory of how people get a living, the processes of production and distribution. It is regarded rightly as a very practical subject, but it is practical in the sense that geometry is practical. It is an abstraction, a useful abstraction but an abstraction. Just as there does not exist in nature a pure straight line, undeflected and unaltered, with merely length and no other dimension, so there does not exist an economic man—he, too, is an abstraction—the man who has come into the world with the sole desire to buy cheap and sell dear. In actual economic history, you have a wide variety of people who have little in common except bewilderment, who are striving to get some sort of living, while at the same time moved by a great many non-economic impulses and motives as well.

So it is with sociology. Sociology is the science dealing with human beings in their general social relations, just as politics in their governmental or political relations, and economics in their relations to wealth. Now, sociology abstracts from the flux of history certain principles and says human beings, according to their psychological makeup, do in the mass act in this way or that way, but the sociologist gets all his data from history. If it wasn't for history, there would be nothing out of which to make sociology at all. It would be simply guess-work, as, indeed, it very largely is.

So we turn to history for the actual concrete evidence in every case which lies behind each of the social studies. Now history is very unsatisfactory as a science. I hesitate to use the term "science" for it at all, because the term "science" has come to imply, rightly or wrongly, a certain exactitude, and history cannot in its nature be exact, not only because there are great gaps in the evidence, which is just as true of geology as it is of history, especially paleontology, but also because there is something worse than gaps. There are deliberate falsifications here and there or psychological errors introduced into the record. The rocks may deceive the geologist, but they are not trying to deceive him. The historical documents may deceive the historian, and they may have been calculated to deceive him, or, more likely, to deceive contemporaries. As somebody has said,

history is just such a sort of science as chemistry would be if the chemist had to make all his deductions from the observations made by the office boy.

In other words, let the historian be ever such a superman, who is just as rare in the historical field as any other, he will still have to depend on certain records or documents which in themselves, he knows very well, are inaccurate and imperfect.

So I do not like to use the term "science" for history. It has not that precision which science usually connotes. But it is a body of factual material, a body of information, a science in the older sense, a body of learning, and as such it offers, with both hands full, information of the greatest utility to every human being who must deal with his fellow human beings, to every citizen who must decide the destiny of his commonwealth, to every professional man who wishes to get the human background of his own occupation.

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## Death and a Country Doctor (D. C. L.)

### *In Memoriam*

His life was long and full of selfless hours;  
Most of the arts of healing did he know:  
Yet latest turns of science he was slow  
To try on those he called "My Wilted Flowers."

Each death to him was bitter as defeat—  
He spoke but once in public and he failed:  
His subject St. Mihiel, he first detailed  
The great maneuver and the foes' retreat . . .

Then something else he thought and fain would say:  
In different mien he talked of trampled grain  
And star-strewn sleeping figures done with pain—  
Again, again he tried and turned away.

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One night a glare of lights—a crashing van  
Pins him beneath his wheel—as those at hand  
Withdraw his mangled form, his last command,  
"Quick with my bags! I must have hurt a man!"

C. F. D.

## V.—ESSENTIALS

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What constitutes the best preparation for the study of medicine is a question which is intimately linked with that other question to which this Association has devoted so much attention—on what basis should the medical student be selected? The two questions would seem to be inseparable, for, obviously, that applicant to the medical school should not be accepted who has not studied the right subjects. Conversely, he who has studied the right subjects, in the eyes of the admitting officers, has already cleared the highest hurdle in his path. It is important, however, that he shall have studied these subjects in the right way. Therein lies the all significant difference. He may have elected desirable pre-medical courses but have worked at them in the wrong way, even though he has earned acceptable grades. Which is the more important, the course selected or the method and spirit of the attack on it? If my discussion seems to waver from the topic assigned and to dally with the question of criteria for admission, it is because it is my firm belief that how a premedical student has studied is far more important than what he has studied.

There must be an irreducible minimum in the premedical curriculum—the material without which the study of medicine cannot be undertaken with prospect of success. How small the irreducible minimum is, very few faculties, either literary or medical, have the courage and the intellectual honesty to admit.

The premedical student must know the English language sufficiently well to read with understanding and to impart his thoughts to others by means of oral or written communications. His high school course should have given him this ability. If it did not, the doors of the literary college should not have been open to him. He should be able to spell correctly those words which he uses constantly. Did I not feel impelled to deal realistically with my topic, I would be disposed to put this attribute with the indispensables. But there are so many apparently successful physicians who are poor spellers that I would find little support for this position. Nevertheless, I must seriously question the powers of observation of any physician who continues to misspell "diphtheria," pneumonia" and syphilis" on death certificates and infectious disease returns. I find no evidence that college courses in English are indispensable.

There is no absolute necessity for the study of any foreign language, either ancient or modern, by the premedical student. Least of all can a good argument be put up for the study of Latin. Etymologically, medical nomenclature is much more dependent on Greek than on Latin; and whatever Latin appears more or less symbolically in prescriptions can be taught in twenty minutes. I wish that in all honesty I could list at least one year of Greek among the indispensables, but I know that in this audience there are many who have risen to positions which command esteem and respect without it.

Among the sciences, enough general biology to give some basic understanding of the attributes of living matter and of genetics is, in my opinion, essential. It is difficult, indeed, to justify biology on the ground of its factual material in the fields of anatomy and physiology. The anatomy and physiology of man are taught in the medical curriculum and any material which would be subject to repetition is certainly not indispensable. In my experience, the student who does not learn the essentials of genetics in his premedical work seldom gains a useful mastery of a subject which is proving to have constantly increasing importance in medicine.

In chemistry, I consider as indispensable the fundamentals of both inorganic and organic chemistry, with enough of both qualitative and quantitative analysis so that the teachers of biochemistry and of clinical laboratory work will not have to start at the beginning. If the student preparing for medicine acquires this knowledge in classes with those majoring in chemistry, or with those who are prospective chemical engineers, he will cover much material that is far from being indispensable.

A certain grounding in physics is also essential, but no more than is available in the better sort of high school course. A corollary to the mastery of even this minimum in physics is the assumption of a knowledge of mathematics through quadratic equations, and of the use of logarithms.

Thus, in my opinion, the subject matter indispensable to the entering medical student can be reduced to these simple requirements in English, biology, chemistry and physics. To be sure, he will find need for much more information in these and other fields, but if he is of the right fiber and if he has been conditioned properly to his task, he will be able to fill every gap as it arises.

While these are my views as to the essentials, I wish to make it equally clear that I am firmly convinced that proper preparation for the study of medicine requires four full years in college. While minimizing the specific subject requirements which can be characterized as indispensable, I insist on full quantitative measure. To me, it makes little difference what subjects are selected to fill the greater part of the student's program, provided they are such as will require hard work, broaden vision and stimulate independent and original approaches. Such courses are usually considered "hard" by undergraduate students. Whether a course is "hard" or not, depends far less on the subject than on the teacher. This is demonstrated by the fact that the courses thus designated are found in different departments in various colleges. It is largely a question of pedagogical technic and of professorial vision.

The course which is taught in the proper way to prepare the student for the study of medicine will require him to extend himself intellectually. He will have to discipline himself to accept long hours of close application; he will have to discover some of the information for himself; he will have to discriminate between conflicting views. Successive courses should demand increasing powers of achievement. Through these experiences, the prospective medical student will be conditioning himself not only for the study of medicine but for the business of

living a full and satisfying life. No high-jumper ever became a college champion by leaving the bar at his high school level; nor is the recruit, fresh from office or store, expected to march twenty miles with fifty pounds of equipment during his first week of military service. The three, or better four, years of college work constitute the period of training for that which is to follow. If I were the admitting officer of a medical school, I would welcome the student whose transcript showed that he had chosen year after year the "hard" courses. His unflattering "C" grades in such courses would be more impressive to me than a long series of grades of "B" and "A" in courses known to be taught superficially and by methods calculated to make the business of acquiring an education a pleasant parlor game.

(These views are, of course, not original. Others have entertained them and a few have expressed them. Dr. Fred C. Zapffe<sup>1</sup> has advanced somewhat the same thesis and I am indebted to Dr. William Dock<sup>2</sup> whose forthcoming paper I have had opportunity to read in typescript.)

When Victor C. Vaughan was Dean of the Medical School of the University of Michigan he was accustomed to tell each group of entering freshmen that they would succeed in medicine if each possessed three I's—Industry, Intelligence and Integrity. Obviously, possession of these attributes depends, in part, on inheritance, but fortunately they are attributes which respond well to cultivation. However, they never arise by a process of spontaneous generation. A sound inheritance is essential.

If the prospective medical student has been properly conditioned by pursuing, for three or four years, college courses that were "hard" because they were well taught, he will possess certain additional I's. (I trust the further alliteration is not annoying.) He will exhibit, and he will enjoy, Inquisitiveness, Inventiveness and, best of all, Intellectual Independence.

My formula, therefore, for the preparation of a medical student is to choose a boy or girl with promising inheritance; require of him a minimum of prescribed courses and a maximum of well taught subjects, and evaluate his intellectual experiences rather than his formal grades. No matter how many courses are prescribed, there will always be gaps in factual material which the student of medicine must fill. Our properly conditioned student will be able to fill such gaps when he encounters them. Will he also be able to fill the gaps which will make a rich cultural experience possible? He can if he will. There are no fundamental differences between preparation for practicing the art and the science of living, and preparation for studying the art and the science of medicine.

I am much more concerned about how the premedical student studies rather than what he studies.

1. Zapffe, Fred C.: The relation of general education to professional education. *J. Assn. Am. Med. Colleges*, 15:228-234, 1940.

2. Dock, William: Training and cultural background of the physician. *J. Assn. Am. Med. Colleges*, 15:381-384, 1940.

## VI.—THE MEDICAL POINT OF VIEW\*

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It is not often that a group of persons interested in medical education confer with those responsible for the teaching of the premedical subjects in college in order to discuss the general topic of the education of a physician. Upon reflection, any one who is concerned with the subject will recognize that it is a very intelligent and logical procedure, and I trust that this association will continue to foster such conferences. Education is a lifelong process. It cannot be studied in separate parts but must be considered as a whole. It would be even better if representatives from preparatory and grade schools were included in this discussion.

The teacher of clinical medicine enjoys one privilege not shared by the others—he is associated with the student in the fourth year of his medical training at a time when his formal education has almost been completed. The schooling of one, however, who enters our profession is never finished because the science of medicine is advancing so rapidly that the student receives merely the basic elements during his career in the medical school and thereafter must continue his education largely on his own responsibility. There is nothing but his conscience to stimulate these endeavors after the medical degree is obtained. It is for this reason that a highly desirable attitude of mind should be acquired during his education which will compel him to keep abreast with the advances in the subject.

Before proceeding further with my remarks, let me state that I am not seriously disturbed by the present state of either premedical or medical education. It is highly desirable, however, that none of us reaches that state of mind characterized by complete satisfaction with any educational method. Such a mood is surely indicative of decadence. Although we can never attain the ideal, nevertheless, there should be constant and steady progress toward what we consider to be a more satisfactory objective. It should be a source of great pride to all members of this Association to contemplate the fact that more time and serious thought are devoted to efforts calculated to improve medical education than is given by those responsible for training in any of the other professional schools.

I do not wish to imply that I am an authority on matters pertaining to premedical education, but I have, at least, dealt for many years with its end product, the medical student. From this experience one must necessarily reach some conclusions, right or wrong, concerning their preliminary training. It is about these that I desire to speak.

Two of my friends, who are among the most successful and outstanding physicians I know, had unusual preparations for the study of medicine. One graduated from a well known theological seminary and other majored in French and secured his Master's Degree in English Literature from a large eastern university. On inquiring from my friend what advantages there were in the

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theological seminary in the preparation for the study of medicine, he replied that "he was obliged to go back to the original sources for information." At that time there were only forty students in his class, and the faculty was made up of a group of outstanding scholars. He really had a seminar type of teaching throughout his college course, which is the ideal type of instruction, regardless of the subject studied. Furthermore, he came under the influence of a group of erudite teachers from whom he could not fail to absorb a scholarly attitude.

My other friend was an accomplished student of the French language when an undergraduate, and in his postgraduate year acquired a knowledge of English literature which has been a source of great pleasure and compensation to him ever since. Incidentally, this is reflected in his medical articles and textbooks, for they are models of lucidity and good taste in the use of the written word.

These two examples are cited, not because it is advocated that every pre-medical student follow either one of these two courses, but for the reason that they illustrate several important points about premedical education which should be emphasized. Some of the ideas advanced may appear rather trite to medical educators as they doubtless have been emphasized many times before. Nevertheless, they will be stated, if for no other reason than to let you know that I am in agreement with, at least, some of you.

First, I am whole heartedly in accord with the movement to liberalize the entrance requirements of medical schools. Those responsible for the admission of medical students in the past have adhered too rigidly to the idea that a prospective physician is to lead a life devoted solely to science. Of course, a certain grounding in biology, physics and chemistry is essential, but a knowledge of these subjects should not be over-emphasized to the exclusion of those which are commonly regarded as part of a general cultural education. Even though only a relatively small part of the total number of hours may be spent in the study of the sciences, the prospective medical student is likely to assume that they are the only really important subjects and that the others are courses merely to be attended, the examinations passed, and the subject matter promptly forgotten. The cultural courses are often regarded by the student as useless in his future profession. On the other hand, perhaps a thorough understanding of the writings of Emerson or some other recognized philosopher or student of life might contribute as much to the training of the future physician as a knowledge of some of the sciences.

When I present a clinic to the fourth year class and look out on the faces of my assembled students, who, within a few months, are to be entrusted with the responsibility of the care of the sick and the dying, I am not particularly concerned with their knowledge of chemistry, physics or biology or any other science. What concerns me is whether they know anything about life in general. Can they think? Do they have judgment? Will they assume responsibility? Do they have an understanding or even a faint inkling of what life is all about? What are their ideas of ethical conduct in general? Do they know broad general principles of the diagnosis and management of disease rather than a memorized

list of the dosages of drugs and the so-called classical symptoms and signs of various diseases?

Most physicians of my generation have been educated in what could be called the era of science in the practice of medicine. Extraordinary progress has been made and countless future generations will be greatly indebted to the knowledge of diseases which has been developed during this period, for, undoubtedly, the science of medicine has progressed more during the past fifty years than it has in the entire history of the world. Furthermore, it now has an impetus which will carry it on forever. But with all of this scientific development, what has become of that almost equally important aspect of the care of the sick—the art of medicine? And when I say the art of medicine, please do not misunderstand me. I do not mean by that a pleasing, tactful demeanor on the part of the physician which puts a superficial gloss over the imperfections of his scientific knowledge. The possession of one does not compensate for the lack of the other.

These remarks have led up to the following belief, namely, that a premedical education should be designed to provide a background, not only for the science of medicine, but also for the art, and in addition, it should fit a physician for a wholesome, satisfying and useful life. For this, he needs not only the science but also a certain amount of philosophy, an understanding of human nature, and, probably most important of all, a general cultural background. These, in my opinion, should be the objectives of a premedical education, rather than an undue emphasis on science alone.

My medical education was gotten at a school in which students were enrolled from every section of the country. They had received their preliminary education from all types of colleges, ranging from the larger, older institutions of the East, to the small, less known, ones of the South, West and Middle West. The medical classes were not large and it was possible in the course of four years to become intimately acquainted with each member of the class and thereby gain some idea of what manner of person he or she was. One distinct impression was made on me about my fellow students. There did not seem to be a complete correlation between the success or ability of the student in medical school and the university which provided the premedical education. Probably an extensive and carefully correlated study of the relative standing of groups of students in the medical schools would show some relationship between these two variables. I predict, however, that there would be some remarkable exceptions to any broad generalizations along these lines. This is because the inherent ability of a student must be taken into account, and, furthermore, there are to be found on the faculties of some of the smaller institutions persons who have a positive genius for teaching. Among my own classmates in medical school were some who had attended such colleges and had come in contact with such individuals. An instructor of this type is often not popular—in the general sense of the word—with the student body at large, and may be regarded as a “crank” by some. But he has that enviable ability to inspire a real thirst for knowledge in a relatively

small group of his pupils who are so fortunate as to come under his influence. Such a teacher is literally worth his weight in gold for he leaves on some of his students the stamp of real genius with which he is so fortunately endowed.

I have another criticism of the students when they reach the clinical years which I suspect is an old one from teachers of medicine. That is the tendency of students to place undue emphasis on the amount of information which is acquired by memory rather than the desirability of training the mind to think intelligently about medical subjects. This is a defect which has been apparent throughout our educational system and sincere attempts are now in force to correct this, from the primary grades on through to the professional schools. I suspect that some of my students would be very much pleased if I gave a clinic which consisted of a mere tabulation of the symptoms and signs of the disease, and then very dogmatically, but necessarily incorrectly, indicated the precise length of time the patient would live, and the exact dosage of drugs which would be specific in each instance. This, some of them would copy in their notebooks, memorize, in the hope of passing the examination, receive a creditable mark, and then forget. Such a clinic might appeal to the student at the time, and one may be regarded as a very satisfactory teacher by his contemporary students. Ten years later, however, there would not be much that they would remember me by.

There is still too much of the desire on the part of students to memorize instead of understand facts. I would not have much admiration for a person who might memorize the Constitution of the United States, as it is not an impossible intellectual feat. On the other hand, I have the greatest respect for a constitutional lawyer who understands, interprets and applies the principles of constitutional law. And, probably, he would be unable to recite verbatim more than one-hundredth of that entire historic document.

I am impressed, also, adversely with the docile and almost too respectful attitude of the modern medical student. In many respects such a demeanor is admirable and pleasing to the teacher of medicine. I am disappointed that the students so rarely question my statements and I have more than once meditated over this situation. It is not because I am so dogmatic in my statements, or that students are rebuked for an honest and intelligent query concerning any comment that has been made. Why is it that the present day medical student, at least many of those with whom I have come in contact, is willing to accept almost anything his teachers say without question?

I have two explanations for this attitude, and, of course, there may be others. In the first place, throughout our educational system, from the very beginning to the end, there is a regrettable failure to stimulate satisfactorily a spirit of inquiry in the mind of the student. There has been too much of a tendency on the part of teachers to submerge that highly desirable quality of mind which we term curiosity, or a natural and intelligent attitude of skepticism. Children are born with it, as any mother or father will readily testify. They always have been and will continue to be curious, unless we breed out this highly desirable element of intellect by suppressing it in generation after generation. As it is now, curiosity

is greatest in early childhood and appears to grow progressively less as the individual matures. By the time some reach the last two years in medical school, it has vanished completely and probably forever. Probably such students have finally become convinced, either consciously or subconsciously, that it is futile or even poor taste to argue with the professor. If the teaching profession continues to suppress all original thought, we will be in serious danger of impeding progress.

It is analogous to the situation in the early history of medicine when the men of medicine adhered blindly to the teachings of Galen for many centuries. They never dared question the dogmatic statements of this master which, of course, were incorrect in many particulars. At least for some centuries after his time, they found it easier to accept in toto what he had said, rather than devise experiments to prove or disprove his assertions. Why submerge one of the most important endowments of the mind by modern educational methods?

In some instances, this results from a type of teaching which is undesirable, but one which a teacher may readily assume, unless a serious effort is made to avoid it. It results, in large part, from the tendency on the part of a teacher, particularly the overworked one who has not the time for research or the leisure to reflect, to impart some information to a heterogeneous group of students who are good, bad or indifferent in their capabilities. He strives in his efforts to give them some facts in concise and final form, and to make the data as tangible and easily assimilated as possible. In other words, the teacher unconsciously is trying to think for his students. To lecture to a group in a dogmatic manner as though the subject is a closed book, is, in some respects, the easiest but not the best way to conduct classes. It is a type of teaching which tends to stifle original thought on the part of most of the students. It certainly is not conducive to the development of a fine sense of discrimination and judgment which is so desirable in any person who is to begin the practice of medicine in a relatively short time. For in this profession, one of the most desirable traits is an intelligent and healthy skepticism, combined with a mind which is still receptive to convincing evidence without prejudice.

Another reason why this inherent and precious flame of curiosity is smothered in our modern education process is the imposition of an undue amount of work on the average student. He literally has not sufficient time to think, reflect, or orient himself because after he has learned or memorized that for which he is supposed to be responsible, no time for serious meditation remains. In other words, in some instances, he rushes pell-mell through his college course, receives his diploma on graduation, and presents himself at the doors of the medical school breathlessly awaiting the sound of the scholastic starter's gun, to begin the same race through the four years of medical school in which he may pursue the same educational antics. In some instances, he never ceases his intellectual sprint during the remainder of his life. Too often, I regret to say, he never begins his thinking. In this modern life, it seems as though we are in danger of not having much time left for serious thought. Not infrequently I see such individuals as patients, who come to me with absolute bewilderment because, while they attained some measure of success in business or in their profession, they are

wondering why, at the age of about 45 years they are beginning to lose their grip, to tire easily, to have a diminishing zest for life; in fact, to have attained the state of complete boredom. It is not my purpose to present a treatise on the care of the psychoneurotic business man, physician or teacher, but the entire matter fits in so well that I cannot refrain from mentioning it. Anyone who pauses to consider, can readily appreciate that every person who does the same thing over and over again in the same identical manner for several decades, without diversion or pause for thought, ought to be intolerably bored.

I contend, therefore, that one of the very radical tendencies of the modern educational world is for the teacher to take over the reins of thought for his students, and subconsciously insist that his pupils should think as he dictates. Please do not deduce from my remarks that these criticisms are directed solely toward the educational methods which are employed in college. I believe that they can be equally well applied to the medical school. In fact, I am sure that some students are delivered in a healthier state, educationally speaking, at the door of the medical school than they enjoy on the day they receive their medical diplomas. There may be a number of reasons for this which I cannot discuss at present, but in my opinion the most glaring and regrettable one is the overcrowding of the medical curriculum and the high pressure idea that you are going to be taught whether you like it or not, which is applied with grim determination by some medical faculties.

Another matter of importance in both premedical and medical teaching, is the attitude of the student. It has been my observation in recent years that the average undergraduate so often considers that in college and medical school he is there to be taught, rather than to learn. He sometimes subconsciously thinks that education is a purely passive matter and that his participation in the process is of secondary importance. It often requires an amazingly long time for some of us to appreciate that true knowledge is acquired largely by one's own effort. Some seem never to concede the fact that the only role the teacher can assume properly is to stimulate an interest on the part of the student, to guide his efforts, and show him in a subtle way how his knowledge can be correlated. In other words, the student should realize that the teacher can only inspire and direct his efforts. I know that this is a statement which is as old as the teaching profession itself and I mention it for only one reason. There seems to be a tendency on the part of some teachers to conclude that it is almost useless to expect the student to learn—he must be taught, undesirable as the situation is. In other words, the attitude of a minority of educators in medicine is that we must make the most of a bad job and give the medical student the best we can. The idea of supervised self-education, they conclude, is idealistic, but impracticable. This I do not concede, for I think it is possible to steer a middle course in teaching which still gives a student considerable information but at the same time does not prevent his active participation in the educational process.

In conclusion, I cannot attempt to summarize my rather diffuse remarks, but can only say, let us have the wisdom to give the premedical student a liberal education, and continue it, in principle, in the medical school.

DISCUSSION  
ON SYMPOSIUM ON PREPARATION FOR THE STUDY OF MEDICINE

DR. BRUNO MEINECKE (University of Michigan): I think that I may honestly say that I have been sumptuously regaled by all of the papers and discussions, and I may also honestly state that on the whole I agree with everything that has been said, and where I disagree I believe I can do so graciously, with all due respect to Dr. Weller.

I wonder whether this program, so far at least, has not proven to us that there is essentially very little difference between a humanist and a scientist. In fact, most of the men, it seems to me, who appeared on the program are distinctly humanists, and I am sure they are not lacking also in the reputation of scientists.

As a matter of fact, as we go through the history of medicine, we find it rather difficult to point out any one man who has made great contributions in the field who was not a great humanist. I do not believe that there is essentially any wide line of demarcation between a humanist and a scientist. I think that the one fades imperceptibly into the other.

Here, at our own university, we had a good illustration of this in a former illustrious dean, Dr. Victor C. Vaughan, and if you will pardon a personal reference, I may say that much of my interest in medicine, particularly in the history of medicine, has been due to the sympathetic ear which he lent to many of my ideas. Frequently, I had sessions with Dr. Vaughan on problems relating to the interpretation of various authors and passages in the history of medicine. I found him to be a very thorough scholar in all fields, a man who could analyze, for instance, a medical word by tracing it back to the original Greek and Latin without a moment's hesitation.

A modern German scientist, Dr. Hans Much, famous for his contributions in the field of tuberculosis and for his researches in many other branches of medicine, who died just before the Hitler regime came on in 1932, published among other books a splendid discussion on "The Essence of the Healing Art," and in it he made, among other statements, this very significant one: "*Auf allen Gebieten stossen Neu und Alt aufeinander.*" (In all fields, the old and the new touch one another.) "*Es gibt nichts Neues im reinen Denken.*" (There is nothing new in pure thinking.) "*Alle Gedanken sind gedacht.*" (All thoughts have been thought.)

He did add, however, subsequently, "*Es gibt noch Neues zu erfahren.*" (There is something new to experience.)

Here again the scientist was a great humanist and philosopher, a man who realized that the physician, caught in the rut of diagnosis, needs the perspective of all civilizations, and that our civilization is but the composite culture of the ages.

If you will pardon a personal reference, I may say that during twenty years of teaching courses in the history of medicine and in medical nomenclature and orthoepy I have had a good opportunity to observe the defects in the training and thinking of a goodly number of so-called premedical students. From this association I have learned a great many interesting things, both in and out of the class-room. I should like to give a brief summary of this experience, although some of these faults have already been pointed out, especially by Dr. Okkelberg and Dr. Sturgis.

First of all, I have often felt that in our premedical work, there is a lack of intellectual and professional drive, a lack of intellectual and professional impetus or momentum. It seems to me that this may be accounted for partly on the basis that the average student does not seem to have a very clear idea of professional values, of the difference between a profession and a business, and we all agree that there is a difference. Briefly stated, a profession is based on a tradition which has definite intellectual elements. A profession comprehends a body of knowledge which furnishes a broad foundation and perspective for its members, and this body of knowledge expresses itself in a definite literature which embodies the ideas of conduct, behavior and action of those who profess this knowledge—and profess means to avow or declare publicly.

A profession considers a man as a human entity; a business regards him as a commercial prospect and exploits his pocketbook. In other words, business rates a man on the basis of Queen Cash. Business aims to satisfy man's material wants. But a profession aims to improve human life, its desires, its aims and its aspirations. It seems to me that that fundamental difference is one that ought to be definitely emphasized very early in the student's course. He is not entering on a business or a trade. He is not to apply factory methods. He is not to be industrialized; he is to be professionalized. His watchword should be, "*Homo sum; humani nihil a me alienum puto.*"

Secondly, there is a lack of unity in the teaching influence of the college professors. This has already been mentioned. I think a great many teachers often teach *a subject through the student*, but many do not teach *the student through the subject*. This is especially a weakness apparent in large classes where the lecture system prevails, with the result that the subject has been so completely mechanized that the spirit and philosophical content of the study is almost wholly effaced. Every subject in a professional course of study should be taught as a *modus vivendi* as well as a *modus operandi*.

A third defect is caused by a lack of suitable selectivity. We have a large number of students, notwithstanding the statements that have been made, who do not have the high intelligence and training which is demanded of a physician. There is a large mass of young people who are entering on the profession merely because fond parents would like to have a son with an M.D. behind his name. One cannot make a silk purse out of a sow's ear, and the large number of students who apply to medical schools from year to year—I think it is in excess of at least ten times the number that can be accepted—seems to me to show that we should select more carefully, as has already been said.

Fourthly, I think one other defect in premedical education is the tendency among some students toward hyperspecialization and hyperdepartmentalization. This is very dangerous, particularly when it is done early in the student's work. Hyperspecialization develops a mental groove. The result is often a mental grave, especially intellectually.

Now, if I were to sum up briefly some of the sound elements which a premedical student ought to include in his training, I should, I think, agree with practically all of the speakers, maybe add one or two others and list them this way.

It would seem to me that, first of all, he should have a thorough training in the scientific method of procedure in acquiring knowledge. The essence of the scientific method is accurate observation; secondly, faithful and systematic recording; thirdly, the ability to draw logical and reasonable inferences from the facts observed and recorded; and fourthly, the ability to express these inferences in clear, concise, correct and cogent English. The formal study of any language, but especially an inflected language like Latin or Greek develops such habits.

Secondly, premedical training ought to put a great deal of stress on the moral and ethical evaluation of human activity. This type of training helps the student to differentiate between the good and the bad, the right and the wrong, the desirable and the undesirable, the proper and the improper. It helps him to develop a philosophy of life which a professional man certainly should have, and it brings him into harmonious relationship with the best and highest aspirations of men in his field. This can be partly attained by a very intimate study of the history of medicine, which is largely, of course, a study of individuals.

Thirdly, there should be training in the general symbolic representation of human experience. This is comprised in the study of language, literature, music and the fine arts. Life is not a matter of the calendar only. It is a matter of intelligent thinking and intelligent feeling.

Fourthly, there should be an acquisition of broad factual knowledge of the world. Here, too, I think the history of medicine is practically indispensable for a premedical student. This factual knowledge should be broad in scope. It should extend far back into

the past. It should begin with the Ebers' Papyrus and continue on through Osler. It must have a focal point in the interest of the student.

Fifthly, there should be some opportunity for creative expression in his work. He should be given some particular problem to work out, whether it be in chemistry or whether it be in some literary subject. This, again, involves a definite goal or aim.

It seems to me that we as teachers should also provide for a closer contact with the premedical student. I also believe thoroughly in closer coordination of premedical and medical work. There is often a wide gap or chasm existing between the two, so much so that a great many students sometimes regard premedical work as a nuisance period, in which they have to serve a certain time in order finally to reach the real issue.

We may now still consider briefly wherein lies the specific value of Latin and Greek for the medical student. In this connection I must honestly admit that the negative action of a group so intelligent as this body has wellnigh amazed me. It does not seem possible that anyone who has even the slightest historical perspective would fail to see the progressive interrelation of the classics with medicine. Are we, who have in our charge and keeping the solemn obligation of educating youthful minds for the most important profession in the world, to be so engulfed by the adverse waves of intellectual defeatism which is seeking to eradicate every vestige of humanistic and liberal education from our schools and colleges that we would deliberately disseminate such false educational doctrines as that it makes no difference what *subject* a medical student pursues, provided only the *manner* of teaching is considered? Even the present requirements of the Association do not bear out so specious a falsehood. Let us rather remember that mediocre minds have no place in medicine, and that such minds must have a veritable passion for accuracy and precision and those other professional distinctions already referred to; that in such a program the exacting and definite details to be mastered in the pursuit of classical study are of inestimable value. Lack of time forbids further discussion of this cultural phase inherent in the study of Latin and Greek.

You will, of course, concede that the medical vocabulary is overwhelmingly built on Latin and Greek. And I say "Latin and Greek" advisedly, because the two form a Janus head, the one pointing to the source, the other to its perpetuation. All Greek stems pass into medical nomenclature through the Latin, so that a knowledge of Greek alone would be quite inadequate. The language of medicine is primarily and inextricably interwoven with Latin, beginning with the vigorous civilization by the Tiber and perpetuating itself through medieval Latin into modern times. Both Latin and Greek have quite naturally earned this rightful and envious position in the evolution of our medical nomenclature and orthoepy for many reasons, but especially because the exact meaning of roots and prefixes no longer fluctuates by modern usage.

Now it is precisely this knowledge and appreciation of fundamental forms in his medical vocabulary which accounts for the tragic confusion in which the student today finds himself. Not only does he manifest a woeful lack of linguistic training generally, but specifically he mostly lacks the elementary education necessary to learn and pronounce his medical terms with any degree of correctness and accuracy. No technical language is today so completely abused and misused as the language of medicine. Mispronunciations abound everywhere, and in each case such errors show only too clearly that the user has no correct knowledge of the term employed. The quaint excuse that usage decides such matters is typically American, and on close examination will not meet the test. Words are but symbols, but in a technical vocabulary their formation and meaning are definitely fixed, and must necessarily be so; the alternative is utter confusion. Here a knowledge of Latin and Greek is indispensable.

*In summa*, I should urge once more that you restore the modern student of medicine to his natural birthright in order that he may be more thoroughly educated in this great field of human endeavor. I do believe, however, that teachers of Latin and Greek should direct this work more into medical channels, and that Celsus should be the foundation of

reading rather than Caesar or other Latin. The same method should be followed in the teaching of Greek. By such a course the student would himself feel the close affinity between linguistic study and medicine. We have given such courses in Medical Latin here at the University of Michigan for many years. Although such a procedure is desirable, the student should by no means be subjected to a narrow study of Greek and Latin readings, but to pertinent selections from the greatest thinkers, carefully selected.

DR. W. A. PERLZWEIG (Duke University): It is an interesting fact that in theories of medical education the cycles of wars and depression are another aspect of human life. As Dr. Willard said this morning, the importance of chemistry was emphasized four hundred years ago. Unfortunately, though, at that time chemistry was still largely of a mythological nature, and it did not suffice for the trying needs of suffering humanity, therefore, it was thrown into the discard.

I do not know how many times the pendulum swung back and forth between the fifteenth century and the early part of the twentieth century, but you certainly took a violent jerk in the early part of the twentieth century, after the famous Flexner report, when rigid requirements, particularly in science, were laid down for entrance to medical school.

We find again it does not work. It does not work for another reason apparently. There is too much precise chemistry at the present time, just as there was too little chemistry four hundred years ago. The writing is again on the wall, saying that the premedical requirements must be liberalized if you want fewer specialists and more broadly educated people. Everybody is in essential agreement about it, and has been apparently for the last few years, but I would like to present to you some apprehensions and fears of my own as to the immediate future, as to the results of this swing of the pendulum to the position where it was twenty-five or thirty years ago. Perhaps, it will not be exactly in that position—I doubt whether it will be—but certain dangers are inherent.

The dangers are that if we do not prescribe vigorously so many courses in science and more courses in other disciplines, what will follow will be merely still more courses in more disciplines and we may not follow the sage advice made by one of the previous speakers this morning of fewer courses in general, and more attention to the contents of human knowledge and human wisdom, such as has been accumulated for us, and by methods, techniques, approaches that are inherently correlated and integrated into a discipline of human knowledge and human behavior as a whole.

I am perfectly willing—I, a biochemist—to have the number of courses in chemistry reduced from three or four years to two years. I should be willing, readily, to grant the advisability of that, if I were perfectly certain that the two years in chemistry that the student will have before he comes to us in the medical school will be two years of studying the fundamental principles of chemistry, and not an assortment of courses of inorganic chemistry, analytical chemistry, physical and organic chemistry, courses with certain minimal hours attached to them, certified on the transcript by semester-hour credits, rather an exposure to the chemical approach to the organization of nature as a whole, including the biological nature of the cell and the aggregates of cells known as organisms.

I would be even more willing to grant the desirability of curtailing the number of scientific courses, if I were certain that the teacher of physics in the college was on speaking terms with the teacher of biology and chemistry and consulted with him once in a while as to what he is doing with the fifty, sixty, two hundred premedical students who are crowding to his courses; if among the science teachers in any college that has a sizable number of premedical students there were some unity of purpose, unity of outlook, what the Germans call *Weltanschauung* in regard, at least, to science, that was communicated to young minds instead of the presentation of the assortment of facts with periodic examinations on these facts and systematic grading on the faithful memory of these facts.

I speak, as you might infer, from what you can term bitter experience. I would like to be specific. I would like to refer to large numbers of students who come to our biochemical laboratories after having majored in chemistry in their undergraduate days. That means at least three years of chemistry, and in many cases four years of chemistry.

Unless a man had in himself, in his genes, so to speak, an inherent interest in the subject of science, and has studied it the way a man who has made up his mind to be a chemist studied it, these four years of selected courses or assorted courses in chemistry, as far as I am concerned, have done him very little good, because he comes out with a greater rather than a smaller confusion in regard to those fundamentals of chemistry without which it is impossible to build a coherent theory of the behavior, let's say mechanical behavior, of living organisms. He has not really incorporated into his consciousness a concept of an atom, an electron, or of the inherent nature of a chemical reaction. It takes very little probing to discover it, and, I reiterate, the confusion of that student who has majored in chemistry in his undergraduate years, because he knows that it might be easier for him to get into medical school, that he might be accepted perhaps by one of the twenty schools to which he would apply on the strength of that record, the confusion existing in his mind is, on the whole, rather more hopeless than that existing in the mind of a man who has had at least one course in chemistry in which the extensions that I mention were sacrificed to integrate the comprehension of the fundamental principles and approaches to that particular discipline.

So, likewise I, not being a specialist chemist but being what I may truly conceive as a biochemist—that is, a man interested in the biological phenomena—when I try to see what the student had obtained from his training in the undergraduate colleges, of the universal applicability of any given chemical or physical law to the phenomena he observes around him, whether in the lowly paramecium or in the formation of rock, I find there has very rarely been any transfer of application of universal law from the pages of the textbook or the walls of the laboratory to a phenomenon observed outside.

On the contrary, there has been fostered, rather intensively, an inhibition for such a transfer which the medical student finds most difficult to overcome when he finds he has to correlate biochemical, say, with physiological and anatomical data. My plea is, therefore, to throw the weight of the opinion of this body on the spirit, rather than the mechanical organization of the undergraduate premedical curriculum—which I understand is plaguing every college administrator at the present time in this country—to throw the weight of opinion into the integration of the spirit of the premedical curriculum for a unified purpose, rather than an aggregation of meaningless symbols on college transcripts.

I shall close by reminding you of an ancient fable. I do not remember whether it is one of Aesop's fables or not, but it is related that in ancient times a goat, a monkey and a jackass got hold of some viols and flutes and decided to organize an orchestra. They sat themselves under the branches of a spreading oak tree and proceeded to make what they called music. It did not please them. It did not please the other inhabitants of the woods or the meadow on which this oak stood. They all spread away from it.

The monkey spoke up and said, "Well, obviously we cannot make any good music in the arrangement in which we are seated. You, Goat, must sit here, and the Jackass must stand there, and I will sit on this stump here, and when we sit in this particular arrangement we shall make much better music."

Of course, nothing came out of that. The suggestions of the jackass were no better as to seating arrangement, until the passing nightingale stopped long enough to tell them, "Your seating arrangement has nothing to do with the kind of music you produce. To begin with, you must have tenderer ears."

REVEREND ALPHONSE M. SCHWITALLA (Dean, St. Louis University School of Medicine):  
The purposes of premedical education, as I understand the problem, must keep two

objectives carefully apart and clearly defined. Not that the objectives in the practical working out of the curriculum need be achieved by different course contents and educational techniques but in this sense that the two-fold purpose must be attained if the student is to come to the school of medicine as completely prepared as his capacity would justify. To be sure, I would like to see the two objectives as completely integrated into one as the educational efforts of our colleges and our college teachers could possibly achieve. But I believe that if we place ourselves upon a realistic basis, some deliberate and conscious separate effort at achieving the two purposes must be made. The two purposes to which I refer are, first of all, the practical purpose of having completed the courses that are a necessary preparation for the students for the courses which they are to take in their medical curriculum; and secondly, the cultural purpose through the achievement of which the students are fundamentally prepared for the practice of medicine and for professional life, taking culture here to mean an appreciation of "human values."

It is to be regretted as I have intimated, that we must regard these as two purposes. There is no intrinsic reason why our courses in chemistry and biology should be treated as purely foundation and tool courses and why they should not be thought of as contributing just as much to the student's culture as such courses as history, English literature or philosophy. There is however, this extrinsic reason which makes it necessary to separate the two purposes, that in but too few schools and colleges the cultural emphasis is dominant in the departments which are responsible for so-called premedical students, a term which unfortunately, still persists entirely too commonly. In these two areas of chemistry and biology especially, it is recognized that the student must show a measure of achievement and distinction if he is to prepare himself for the biochemistry, bacteriology, anatomy and physiology of the medical curriculum. We might as well admit the failings of the schools of medicine themselves where also the basic sciences are not always taught with the required emphasis upon human values and where technical prerequisites and technical achievement are still apt to be looked upon as the measure of the student's excellence. Small wonder then that such attitudes of the faculties of the schools of medicine must find a reverberation in the attitudes of the faculties of the colleges.

Perhaps our discussion of the language requirement offers as good an illustration of my meaning as the discussion of any other of our so-called premedical requirements. The modern languages are being taught either as tools for scholarship or as sources of culture. We have reduced emphasis on language as a requirement because we have recognized the failure as a "tool." Modern language faculties are emphasizing, in their protestations, their efforts to teach these languages as avenues of influence towards the appreciation of human values. In reality as one visits modern language classes, the emphasis is all too often placed upon the mechanics of language, upon phonetics, language structure and etymology. Sight is apt to be lost of the enormous value to a developing mind when that mind must force itself to couch its thoughts in the framework of more than one language and to evaluate an idea in the terms of more than one mode of expression. Few of us who have given attention to these matters will ever forget the shock which a student experiences when he realized for the first time that a dictionary is no more than an aid to translation and that to translate means much more than to substitute the word of one language for an allegedly corresponding word in another language. When the student discovers that there are thoughts and ideas for which one language may not have a word at all and which must, therefore, be translated by an ingenious circumlocution, a contribution has been made to one's thinking for which no amount of mere studies in etymology can afford an adequate substitute. The history of words is one of the most fascinating studies not because of any philological laws but because the history of words reveals the changing events of the history of man.

We have conceded much to the times when we omitted the study of Latin and Greek from the prerequisites for admission to schools of medicine. Again for me, not because the

study of Greek roots supplies the practical understanding of many terms used in the biological sciences but chiefly because we have through this omission contributed to the closing of the well-springs of knowledge concerning our western civilization. When we omitted all of this from the requirements for our medical curriculum, we were still thinking in terms of formal requirements. Now that we have broken away from too literal an interpretation of those requirements, let me hope that the effect upon a renaissance of interest in foreign literatures will take place.

By all means we must emphasize the practical aspects of the preparation of the future student of medicine. If we wish to extend as well as intensify the content of the medical curriculum, certain formal disciplines must undoubtedly precede the student's admission to medicine but more important than all of this, I believe to be the student's preparation for understanding, appreciating and becoming enthusiastic over the human values in the study and practice of medicine. That emphasis means a cultural emphasis. And that emphasis too, will make the better physician of the future. The demand is to be welcomed that medicine must respond actively to the social problems confronting our nation but that statement taken by itself is not subject, as I see it, to controversy. What should be the matter of controversy however, is the evaluation of the social trends to which medicine is asked to adapt itself. And here only those whose insight into human problems enables them to see the magnitude of the realities that underlie surface phenomena are prepared to enter into the controversy. In medical practice we are not content with therapeutic measures which meet only the external symptomatology of the patient. Our therapeutics must meet etiologies. Thus too, the social emphasis in pre-medical and medical education must not meet only the superficial symptoms but must seek to penetrate too deeply underlying causes.

The student's preparation for all of this must be broad and thoroughly human in intent, in content and in method. This is the fundamental reason why the student of medicine, as I see it, must prepare himself in college through a study of history, of literature, of sociology and above all, of philosophy. The broadening and deepening of the foundations will enable the schools of medicine to erect a super-structure which alone can be worthy of the dignity and responsibility of the profession of medicine.

Isidore of Seville, in the 6th Century, writing of the practice of medicine, raises the question why medicine is not listed among the fundamental arts, music, mathematics, the representative arts and the art of thinking. He admits that the physician needs all these but insists that medical practice is the synthesis of all these and hence he calls medicine "the sound philosophy of life" thus setting both a practical and an educational objective for medicine as valid in the twentieth as it was in the sixth century.

DR. WILLIAM C. MACTAVISH (Washington Square College, New York University): From 1913 to 1930 I was a member of the Department of Biochemistry staff at New York University Medical School and for the past ten years I have taught chemistry in our undergraduate college. I believe I can appreciate both sides of this question.

Several days before this meeting I had the pleasure of reading Dr. Willard's paper. I find myself in practically complete accord with him. No teacher of biochemistry, I am sure, would care to return to the time when students were admitted to the study of medicine without previous training in chemistry. It is possible now with students possessing the necessary prerequisite knowledge of chemistry to offer a much better course in biochemistry than formerly.

As Dr. Willard pointed out, the medical students would be under a serious handicap in comprehending the content of the better modern texts on biochemistry, physiology and medicine unless he had had rather thorough training in chemistry.

When this body and other organizations interested in medical education recommended that prospective medical students complete certain college studies, including biology,

chemistry, and physics, students developed a tendency to concentrate on science subjects to the exclusion of the humanities. This was palpably undesirable; some undergraduate schools felt that the manner of stating premedical requirements by the medical schools led to election of unbalanced programs of study by students.

At our college we were able at an early date to institute a rule permitting only one half of the college courses in the premedical curriculum in pure science subjects, so that a fairly well balanced program could be followed.

In general, we discourage enrollment in science courses which will be repeated later in the medical school. Our college medical curriculum includes one and one-half years of biology plus an elective half year course, three years of chemistry and one year of physics. Students who complete the four years of the college course frequently elect a major in one of these and may then offer more than the required minimum.

Dr. Willard suggested the addition of a course in physical chemistry. In the good schools both inorganic chemistry and analytical chemistry are taught from the physical-chemico viewpoint and I do not believe a formal course in physical chemistry necessary for most medical students, although desirable for the limited number who go into investigative work. Students often return to us after the first year in medical school to take physical chemistry in the summer session and we have a few graduates in medicine who after completion of an internship have returned for this course.

The teaching of chemistry in many of our colleges is excellent. I cannot agree with Dr. Perlzweig's criticism; it is true that the courses include matter not pertaining directly to the study of medicine. But please remember that our premedical students are taught together with our chemists. In my opinion it would be undesirable to segregate premedical students and I am strongly opposed to the so-called short courses.

The laboratory part of our teaching is of great importance and needs no defense.

The wording of State premedical requirements is sometimes confusing. In my own state "12 points, of which at least 4 points must be a satisfactory course in organic chemistry" is required. Occasionally students wish to enroll for only four points of organic chemistry and curiously enough, some of the medical schools will accept such students, who have completed only the first half of the course. This usually means omission of any treatment of carbohydrates, benzenoid compounds, etc. At New York University we withhold credit for the first half until the successful completion of the second half of the organic chemistry course.

I agree with Dr. Willard that the premedical chemistry requirement of three years, required by most medical schools, is necessary and adequate. More would do no harm but the need is not indicated.

I would like permission to say a few words concerning the remarks of the other speakers concerning the premedical course in general.

I enjoyed very much Dr. Bredvold's paper on English. We find as you do that many students are distressingly careless in their use of language. Our department of English has for some years urged all departments to refer back to the Department of English for further training students who are weak in powers of oral and written exposition.

Someone stated that medical students lack "drive." I find that our college medical students are among the best we have and as a group are equal to any other in the college.

I must disagree with Dr. Ikkelberg's statement that students now entering medical schools are not any better than those of twenty or thirty years ago. My own experience covers this period and I believe the students now entering are vastly better prepared. Of course we have the usual distribution of really brilliant, good and mediocre students according to native ability.

With regard to the number of students who fail in medical schools; considering the large excess of applicants over available places—about  $2\frac{1}{2}$  to 1—competent admissions committees, making use of available criteria, should be able to select a group of whom not more than five percent would fail.

Dr. Weller's paper illustrates what we attempt—and we do earnestly try. How well or how poorly we succeed varies considerably in different schools.

On the subject of attitude toward research: All of us who teach and particularly those who direct the research activities of graduate students know how difficult it is to develop a critical attitude, independence of thought and the spirit of inquiry in students. Some are too modest about their original thinking and need encouragement to voice their ideas, other are so impressed by authority that they feel if someone has expressed a contrary notion that they themselves cannot be right. It is difficult to develop the proper investigative attitude but particularly so in the medical schools, considering the heavy curriculum, the vast amount of factual knowledge the student must acquire, the multiplicity of subjects.

I think all teachers and especially teachers in our medical schools should be on the alert for students of the research turn of mind. It would be helpful if it were possible to give such students special additional training, facilities for investigation, even at the expense of his medical course. On no account should such a student be neglected because such minds are rare and we should help and encourage them.

Dr. Adams mentioned the name of Michael Faraday which reminds me of a much quoted statement "Sir Humphrey Davy made many remarkable contributions to science but his greatest discovery was Michael Faraday."

## Medicine and Anthropology\*

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If I define the science of anthropology as the study of man: where he has come from and where he is going—which is about as brief a definition as I can give—you may recall the story of the Hebrews who blew some horns and thereby brought down the walls of Jericho. And I can hardly blame you. Only, let me point out in apologetic haste, anthropology does differ from those huffing and puffing sons of Jacob in that, with all its solemn tootling, it does not look for a miracle.

First of all, anthropology has been, in a very real part, the by-product of medicine. Great medical minds have seen, beyond the emergency of the hour, problems of human biology, that did not call for the immediate techniques of medical therapy. Physicians were drawn to the lodestone of anthropology simply because their subject—man—is the most interesting phenomenon for man to contemplate. *Homo sapiens*: Whence and Whither? Dr. Hooton thus summarized the length and breadth of the science in his Sigma Xi address of 1935. The physician, dealing with human anatomy and physiology, comparing it with logical inevitability to the bodies of other living creatures, was struck by the stupefying variation in the makeup of the human animal. He started with a theological tradition; he unfrocked it. More than that, he was vulgar enough to strip its clothes off. Thereupon the answer to his query proved unexpectedly elusive—certainly immeasurably more complex than the hoary solution pronounced by theology.

I must conquer a temptation. The history of anthropology in its relation to medical science, its emancipation which had to come as its character matured or crystallized—must be passed by. We might begin with Vesalius, who dissected an ape and compared him with man—certainly no compliment even to a fallen descendant of Adam and Eve; but I would rather skip lightly down the centuries, pause long enough to bow to Linnaeus and his *Systema Naturae* which demonstrates that biologists had already become aware of a certain similarity between those interesting animals, Homo and Anthropoid—and pull up in the nineteenth century.

By 1832, the Museum of Natural History in Paris had changed its chair of anatomy to that of natural history of man; in 1839, this came to include anthropology. But it was Paul Broca who really must be saluted for consolidating anthropology as a science. That carries us back to his founding the Société d'Anthropologie in Paris in 1859. You may be entertained to hear that the Minister of Public Instruction refused to allow the Société to organize, in spite of the eminence of those who sought it. The Prefect of Police was equally

\*A lecture delivered before the preclinical faculty, New York Medical College.

unwilling to assume the responsibility. Finally, Tardieu used his influence; there were only eighteen anthropologists; the law did not prohibit gatherings of less than 20 persons; it was stipulated that Broca was to be held responsible to the authorities for anything that might be said against government and/or religion; and then, to make security doubly secure, a plainclothesman was to attend every meeting. I hope he was not bored.

Anthropology seeks a complete description of man. The description must be dynamic if it answers the questions, Whence and Whither Man? It includes, therefore, ideally speaking, all races of *Homo sapiens*, past and present, and all related forms; even the entire order of primates, extinct and extant. Further, it cannot lose sight of the fact that the primates are mammals, occupying a particular niche in the *systema mammalia*. Anthropology seeks to analyze the complex skein of orthogenetic variation, hybridization, physical adaptation to environments.

It will be difficult to avoid citations to race; but as yet many of the phenomena are not immediately germane to the profession of medicine. Admittedly, the choice of subject matter for this paper must draw an arbitrary distinction between the immediate and the remote. Medicine belongs to applied human biology. No problem of human biology can be denied the searching and criticism of medicine. But medicine already has its hands full. Some problems have not as yet thundered upon its door with the insistence of a desperate husband needing obstetric ministrations in his family. To be sure, the remote of today may be the immediate of tomorrow.

I eschew race and other such questions at this time, simply because our topic leaves me in no mood to catch a Tartar.

I should like to approach a definition of the scope of anthropology, first, by bringing out a comparison and contrast with medicine in the matter of its point of view and method of approach; and second, by indicating those other disciplines into which it ramifies.

Please do not misapprehend my meaning if I say that medicine is essentially an art and a science of emergency. A patient is an individual in a state of physical emergency. The physician is expected to meet and dissolve this emergency. In the last analysis, medicine is directed to the individual. A good physician never loses sight of the fact that the case before him is at long last unique, and a personality. To be sure, he studies what is known, in the aggregate, about the course of typhoid or pneumonia. He is interested in knowing the percentage of cases successfully treated by a given method. Nevertheless, all data must be filtered through the unique situation here and now, as found in this particular individual. The group means nothing, except in so far as it guides in the treatment of the individual. Also, his position forbids him to use his patient as a guinea-pig—certainly he would not be at liberty to sacrifice the life of a patient even under the pretext that the experiment might some day save hundreds or thousands of similarly afflicted persons.

Fortunately for anthropology, its materials are never faced with the issue

of life and death as an element in the experiment. Quite the reverse of the medical focus—the individual means nothing at all, except as he places in the group. Individual variations in morphology, in developmental and other trends, simply contribute themselves to the understanding of a picture of a larger whole. The result is that the anthropologist, by virtue of his discipline, cannot do otherwise than view phenomena secularly. He may be dealing with the same kind of facts as his medical colleague, but he uses them differently. This is the essential difference between the two disciplines: it is a difference not so much of factual materials as the goal and methodology of their manipulation. This, however, will presently appear as the very reason why the relationships between the two sciences can be mutually enriching.

Anthropologists are engaged in multifarious investigations which might also be categorized under the headings of other sciences; conversely, there are scientists who are contributing to the store of anthropology, yet make no claim to being anthropologists. This, again, is hardly different from the situation in medicine; for I think you will agree that the greater bulk of scientific findings which undergird medicine have been contributed by other than medical men. The physicists, chemists and biologists are—and, for the health of medicine, must remain—the backbone of medicine. Anthropology has definite links with the following: anatomy (including comparative), embryology, even histology to some extent, paleontology, archeology, genetics, physiology, biochemistry, psychology, ethnology and sociology. It makes a very extensive use of statistical methods; in fact, the human biometricians, such as Karl Pearson, have led in the discovery of statistical principles which have then been applied to other biological and, at last, to economic data. It were well to remind ourselves that the debt has not been all the other way.

Justly speaking, furthermore, the subject of anthropology includes all study of the primates. That is to say, there are only two chief purposes for which selfish man studies the primates: one is for the sake of human therapy, the other for understanding man in the anthropological sense. We are aware how difficult it is today for the medical scientist to deny the close relationship between man and ape. Intellectually, a few may still keep up that futile attempt; pragmatically, they inconsistently acknowledge the relationship when they use, for practical purposes, the research based on the assumption of the relationship. That kind of unwitting parasitism is even less feasible in anthropology. The ape is closer to man than the ape is to monkey; the bigger gap lies between the ape and the monkey. This discovery is the fruit of anatomy, physiology, blood typing and psychology.

I have said that medicine is essentially an emergency art and science. It implies no disparagement whatever if I add that this colors its entire philosophy. The first thing is to get this man well. The next step is to prevent a recurrence in him, or a recrudescence of the trouble elsewhere. Medicine started a program of expansion, the end of which is not yet in sight, when it undertook to stamp out an epidemic, then an endemic; and thus it passed over into social medicine and adopted tactics of prevention. But in so doing, it has had the experience

that anthropology likewise has had when it applied itself to mass mankind; it found it had stumbled into the field of sociology. Physical anthropology at its very inception as an independent science made an analogous plunge, for it immediately learned that man and his works are inseparable. Physical anthropology is peculiarly tied up with cultural anthropology and more particularly with ethnography, in part, because of its statistical habitus.

And so I would pause for a moment to comment on this statistical habitus, from a standpoint that surely will interest you.

Does it not seem strange that, with all the investigations that have been made on the human body, not a single bone—to say nothing of other parts—has ever been described completely in its normal aspects? The medical freshman dissects; he studies a few bones at most; he reads a general description of that bone in an anatomy textbook. In certain favored cases, he reads some of the primary literature. At some time he learns something about the development of that bone; he studies its histology and its pathology. Eventually, his knowledge of the human body, after years of able career as a physician or surgeon, may for one mind become vast. But it is still true that we do not know what the extremes of non-pathological variation are in any given bone for the entire human race. Not even for that much scrutinized group, the so called "whites." An entire picture of a single bone, with all its normal variabilities, does not exist. And as for correlation with other features, anatomical, physiological, biochemical, etc.—naturally, the world is still wide and open. And yet, clearly if we had such pictures, they would make for a greater precision in understanding the abnormal and pathological.

The late Professor T. Wingate Todd, physician, surgeon, anthropologist, has pointed out that actually, when we study anatomy in the cadavar, we are studying dead people in whom something has gone wrong. In fact, "The adult form of mankind," he has said, "is the outcome of growth enhanced, dwarfed, warped or mutilated by the adventures of life."<sup>1</sup> And "though the internal organs recover their functional integrity, it is the framework of the body which bears the scars of misadventure."<sup>2</sup>

This certainly is true in dissecting bodies of children. Evaluating the normal always partakes of the subjective when it has to be inferred or assumed as present in any given structure belonging to a persons dead of some disease. Professor Hooton, anthropologist at Harvard, has pointed out that there is probably in the world not "a single complete anthropological and medical record of the life history of an individual." An emergency science—and this is not at all spoken in disparagement, but merely to clarify the issues before medicine and anthropology together—has not had the time to undertake a systematic study of the human who does not need a doctor; in whom no emergency exists. And yet—when a physician is confronted with a 35 year old patient, he has but little beyond present symptoms to guide him in diagnosis, prognosis and treatment. But the organism now before him is a living unit in flux—passing from zygote

1. Todd, T. W.: *Science*, March 15, 1938, p. 260.

2. Todd, T. W.: *Science*, June 19, 1936.

to extinction. His present condition is the quotient of all his years of life processes—to say nothing of his ancestry. Except, then, for very fragmentary data, the physician is constrained to rely much on inferences. Laymen are altogether too unappreciative of the wisdom that so often succeeds in spite of these handicaps.

In general biology today there is a trend toward recalling that a dead animal on a dissecting table is an abstraction; that a live rat in a cage is also an abstraction; that nature as a whole is the great and, from the philosophical standpoint, only real unit, even biologically: Organism plus environment. The student of evolution, who has peered at the great secular rises and falls of animal empires over ages, as shown through the telescopes of geology and paleontology, has gained a viewpoint a fortiori denied the laboratory worker. There is something in this march of evolution that to him may diminish the impressiveness of what Weissmann's theory of germinal continuity was supposed to demonstrate. Organism in an environment. Anthropology cannot escape this trend, just because of its preoccupation with its fundamental inquiry: Man—whence and whither? and because of its close contact with paleontology.

I have dared to recall that medicine is evolving in its scope and aims. Social medicine indicates this trend toward ampler applications, fraught as that still is with disheartening obstacles. (Humans are reluctant to spend money in this generation on research that will begin to yield results, if ever, only in future generations; though they are not at all unwilling to spend the money of future generations in the shape of bonds to further destruction in this generation by scientific warfare.) But in so far as medicine trends to the preventive and broadens its scope to cover aggregates, it is approaching the objectives which are also those of applied anthropology, though in its own way. In so far as it views not only man the patient (an emergency situation) but man the animal in an environment, it is going anthropological.

This brings us up against one of the most serious—perhaps the most serious—phenomenon anthropology is aware of in the twentieth century. It is the phenomenon of urbanization. In all its ramifications that is, to be sure, much more than a biological problem. But it is the biology of it that concerns both medicine and anthropology. Sir Arthur Keith, one of the world's leading anthropologists, anatomists and surgeons, has called it the great biological experiment of modern times. Europe has been more aware of its existence than have we, because our urbanization is not, as yet, so penetrating nor of as long standing, as theirs. The organism in an urban environment is a matter of serious study to anthropology. This environment is exercising a selective influence, for weal or woe. It is to date the culminating step in the domestication of man, begun when the first artifact—hammerstone, perhaps—was born. Domestication affects the soma of any animal victim, including man. We face the phenomenon of a human body, evolved in natural environments, and thus answering to those environments, over hundreds of thousands of years, trying to fit itself to an artificial environment in the course of just a few decades or centuries at most. This subject would, I admit, be well worthy of a symposium

—as broad or as narrow in scope as you wish. I shall simply add here, by way of provocation, the words of Dr. Haldane, in a paper read before the 1st International Congress of Anthropology and Ethnology, held in London in 1934; but first, a phrase in one of his essays in his little collection, *Science and Human Life*: speaking of civilized man—

"They are healthy enough in the negative sense of not getting ill, but they coddle their bodies and are incapable of great exertion." . . . "People always laugh when one points out to them the perfectly obvious fact that under our existing economic system biological success and economic success are not, in general, found in the same individuals. Nevertheless, it is a fact of fundamental importance for the future of our civilization . . .

"Man is evolving. I must conclude by stressing the extreme importance of determining the selective value of heritable characteristics, if we believe with Darwin (as I do myself) that the existing human races have largely been moulded by natural and sexual selection. In England, and in most industrial countries, we find a higher fertility in the slums than in the less crowded areas of our towns, and it would appear that we are engaged in breeding a not particularly intelligent race, which is well adapted for life in slums.

"The type which is fittest in one economic environment is not the fittest in another economic environment. Hence it follows that human evolution, like human ideas, is to a very considerable extent a function of the economic system. We know a little—still very little—of what constitutes biological fitness in our particular economic system. We know nothing at all of what constitutes fitness in other systems. For example, in a country inhabited by warlike hunting tribes one would perhaps think at first sight that the greatest hunters, and the most warlike men would beget the most children, just as one might think that the men who are most successful in the activities prized by our own civilization did so, and thus handed on their qualities to their children. It seems to me of great importance to discover how far this supposition, certainly untrue in our own society, is true in other societies. If it is true it clearly makes for social stability, if not for evolutionary progress. But do the best hunters beget the most children, or is it the men who stay at home? Do the best warriors beget the most children, or do they die young? Maybe it will be shown that, even if he is given every educational opportunity the Negro from the tropical rain forest is on the whole a less intelligent being than the European. If so, it may be because an unintelligent cheerfulness is the best possible quality to enable one to survive in what Myres has called the slums of our planet, as it is, perhaps, for survival in our own slums."

I had intended to distribute certain other comments anent urbanization and domestication under various headings later on. But the enormous significance of this problem, indicated as it is by the very extent of its ramifications into fields of medicine, sociology, economics, education, and government, constrain me to collect some comments here.

One of the extensive investigations of anthropology has been on the evolution and racial diversification of the central nervous system, particularly the brain. It is claimed (Ariëns-Kappers et al.) that in domesticated animals the ontogenetic exponent is less than in their wild cousins; and that the same is indicated for domesticated man. Also the coefficient of cephalization is lower. Says Ariëns-Kappers, in comment upon this phenomenon:

"As domestication generally leads to a deterioration of independent activity, it does not seem improbable that similar differences as occur in animals, on account of their lesser pragmatic endowments, may be brought about gradually in the human race by the

unnaturally deteriorating influence of domesticated life, which cannot make us expect a higher cephalization but a smaller one in those human races that have been for ages subject to such influence."

The irony of medicine seems to be that, with all its magnificent achievement, its very nature as an art and a science of emergency has betrayed it to that extreme humanitarianism which, in other high places, is promulgating the beautitude, "Blessed are the mediocre or worse, for they shall inherit the earth." For should we not consider this possibility: that the elimination of one human ailment allows dysgenic germ plasms to survive and propagate themselves, so that, finally, by its cumulative effect it raises even more deep seated evils in the stead of the ailment eliminated? This is no new question, and I think it is not at present in good favor; but it has never been answered, and the issue it raises is, I think, very serious and real. Anthropologists can hardly be blamed for being among those interested in eugenic movements, even though they may also secrete as much milk of human kindness as the next fellow. My point for the moment is this. Here, as in so many other phases of human economy, we face the lesson that an emergency may be alleviated by a remedy, yet its implications may be so wide and deep that in the end the problems of which the emergency was a symptom or but a part, as a whole has been complicated.

Please do not take me amiss. I am as fond of my carcass as the other fellow of his. I go to the dentist. I am his gold mine. Undoubtedly under "natural" conditions I should myself have long been quietly shelved by Mother Nature. I have not only admiration but a sincere love for the medical profession. I am simply sticking to my topic of pointing out a problem that has to be faced by medicine and anthropology in common. In fact, Alexis Carrel has propounded the best means of solving our difficulties that has come from any one. Let us have a hierarchy of physicians (is this seditious propaganda?); but—in sorrow I say this of an idol of mine—in that Alexis Carrel either forgot or did not see fit to season his supreme court with a dash of anthropologists, he is open to the reproach of being a little provincial.

Thus anthropology, which started largely as a by-product of the physicians' professional observations, and which, therefore, originated as something of an academic pastime, has passed the pragmatic test that has validated other sciences also: it has formulated important and practical problems that face man and his culture, and is attacking their solution. These problems really are emergencies, in the broad sense in which I have been applying that term to the problems of medicine. Anthropology, then, also has come to face emergencies. In other words, it is coming of age because it is in vital contact with realities.

In the remaining part of this paper I would list and discuss, briefly, a few of the problems other than this great general one anthropology is studying, and that should be of interest to medicine. No attempt shall be made to point out the contacts with medicine, for you can do that better than I.

Anthropology has always rested first of all on anatomy. Those who first founded, then promoted, our science were physicians interested in anatomy. I have said that anthropology has for its aim a complete and dynamic description

of man. That anatomy is, therefore, increasingly tinged with anthropology must be inevitable, and certain newer anatomies, such as Pernkopf, clearly show this. It is common for European medical schools to include anthropology courses in their anatomy curriculum. Sir Arthur Keith in England, who is as much anthropologist as he is physician and surgeon, encompasses as one general subject, in his lectures to the students, morphology, embryology, anthropology; since together these enrich their knowledge of anatomy. T. Wingate Todd, of Western Reserve University, was noted for doing a similar thing. But there do not seem to be many medical schools in this country that follow that kind of method. Harvard Medical School has long availed itself of Dr. Hooton for this purpose, and the University of Chicago in its Medical School also gives serious attention to anthropology in special courses.

But these courses involve much more than anatomy; so that I am straying a little from that subject. Let me return for a moment to the investigatory aspect.

The bulk of anatomical anthropology has been done on bones, brains and teeth, or has consisted of the anthropometry of the living. Anthropometry, in the hands of a competent professional, is a formidable instrument; it yields invaluable results; its skill is both a science and an art; nevertheless, obviously, the studies enumerated do not cover the subject of anatomy. While Keith and Wingate Todd and certain Germans and Poles give, in their own way, further anthropological anatomy to their students, and there is a respectable body of research scattered throughout journals of morphology and physiology, as well as specifically anthropological ones, actually the anthropology of the soft parts—with the notable exception of the brain—hardly exists as such. There is only one compendium of soft parts anthropology, so far as I know: the Polish scientist Loth has written one in French.<sup>3</sup>

But of the anatomical disciplines the most difficult to work in is that of embryology, for obvious reasons. It will be generations, I fear, before we shall have a respectable developmental history of man; in fact, I doubt if we ever shall have it; for Australians, Hottentots, Fuegians, Andamanese will have disappeared completely, unless civilized man, by international agreement, establishes folk preserves. (This, by the way, is one of the measures advocated by anthropologists.) But even if that measure be realized, it is altogether beyond reason to hope that the fetal anatomy of these peoples shall ever be recovered. We may, on the other hand, reasonably expect some day to know more about the differential growth rates of somatic dimensions, and concomitant endocrinology of fetal Nordic, Alpine, Mediterranean, Dinaric et al. within the white race girdle; and similar knowledge of Chinese, Japanese, Hindu and various Negro race components. This will help; still, in the end, we shall woefully miss the Australians and the North American Indians.

I wish to make the point that we consider comparative anatomy and embryology essential prerequisite studies for the training in medicine. We admit that

3. *L'Anthropologie des parties molles.*

other mammals, especially apes, comment illuminatingly on human biology, both in health and disease. And yet, comparative human biology, which is what anthropology affords, is neglected; on the assumption (and it is, I think, erroneous) that all humans are so much alike that their systematic differences are unessential to the physician.

A word for microanatomy. It is an unharvested field. There are some studies that compare negro tissues with white; but the morphological and physiological secrets of the tissues that might tell us of race differentiation and certain pathological potentialities, are still locked from us.

In the last analysis, anatomy without physiology is sterile, and vice versa. Yet anthropological physiology is far behind anatomy in development. This is not surprising. The physiology of Neanderthal man and Sinanthropus must forever remain lost, along with their soft parts. To be sure, much physiological work done on our own European races has great anthropological interest; such as the physiology of growth, occupational differences and concomitants of body-build differences. The British Medical Research Council, for instance, has been taking inventory of the human stock of Britain. It is high time, too, in an economic system that is vastly concerned with dividends and appallingly indifferent to human biology. There are some notable exceptions, I think, to the lag in physiological anthropology. In Europe, where their consciousness of racial characteristics is in marked contrast to our own indifference, the effort is being made to study body-build and its endocrinology and other metabolism in correlation with race factors. It has long been known, for instance, that Alpines are short and stocky, Nordics tall and rather slender, East Europids somewhat less tall but heavy-boned. Whatever be the physiological reasons, racial differences are real.

I think it superfluous for me to try to emphasize the importance of this kind of investigation. If we lack exact norms for human anatomy, even more painfully is this true for physiology. We have a little knowledge of the differences in respiration, heart beat, basal metabolism between Chinese and "Whites," also to a very slight extent of a few other groups, Negroes, Hindus, Japanese, Amerinds. The American Museum of Natural History has had an expedition in South America to study some phases of the metabolism of primitives. The issues of the *American Journal of Physical Anthropology* naturally devote space to physiological findings along with anatomical ones. In Germany, interest in this field is reflected in the publication of the *Zeitschrift fuer Rassenphysiologie*.

In Europe, particularly in Germany, the study of body-build and its physiological associates has led to the birth of an infant study, race psychology. Just how far this subject has been carried; whether it can already be considered a science at all, I am incapable of judging. I shall be bold enough to say that I believe it has gone far enough to establish its legitimacy.

This seems to be the most favorable spot for mentioning a phenomenon that, for weal or woe, is inevitably increasing in significance. Hybridization has been honored in emotional denunciation and sentimental defense rather more than

in scientific study. The genetics, anatomy, physiology, psychology and sociology of hybridization have long formed a topic of study for anthropologists. That is because many of us believe that hybridization has played an enormous role in the origin of at least some races. But I can more easily point out what we do not know than what we do. We can with fair assurance say that a European-Chinese hybrid, in its resultant manifestations, cannot be equated for evaluation, with, say, a European-Hottentot cross. We would grant that two individual crossings would necessarily be mutually different in their product; one might be "better" than the other; yet it were easier to say that, in the end, the two are incommensurable. But, if individual crossings are hard to place on one and the same scale (I do not say it is inherently impossible), how much more difficult to compare the unhampered crossings of entire races! Again, a fine mental and physical specimen of African ebony, crossed with a strapping Scotsman, may produce a magnificent mulatto; yet it is a far cry from admitting the advisability, from a purely biological standpoint, including mental potentiality, of crossing the Scotch people with the Bantu.

In the past thousands of years hybridization has been more extensive than is generally known. Most groups of people today demonstrate that they are of mixed origin. It is possible that their component races had, thousands of years ago, a certain germinal plasticity which today the same components would not possess. Thus, conceivably a Nordic-Mediterranean hybridization ten thousand years ago might have been a very different matter genetically from what it would be today. We do not know. While much of this may not be relevant to medicine, at least it does become relevant if medicine be called upon to help arbitrate whether certain crossings are dysgenic physically and physiologically. But we have very few convincing studies. One of the best still remains Dr. Fischer's investigation of the so called Rehoboth Bastards—a Dutch-Hottentot community in former German Southwest Africa.

Meanwhile, there persists the task of investigating anatomically and physiologically the hybrid individual, and comparing him with his parent and siblings. His parents are not only individuals, but members of races.

Let us return to a biochemical phase of anthropology that touches on medicine in a most peculiar way. If the solution of the enigma of blood types was a boon to medical practice, it has brought many a headache to the anthropologist. Landsteiner's discovery in 1901 had medical application; in 1910, Hirschfeld and von Dungern established the mendelian character of blood types; but the fun began for us when in 1919 the Hirszfelds published their anthropological investigations on the armies in Saloniki. Since then blood typing has been done in almost every corner of the globe. While the gaps in the composite are still very large, the analysis (which included mapping) of the data is intriguing, but also the questions of race and human evolution have been complicated.

I must resist the lure to expatiation which haunts this topic, and confine myself to one or two remarks. In Germany there is a society for the investigation of blood types, and it has published since 1929 the *Zeitschrift fuer Rassenphysi-*

*ologie*. (Haldane has commented rather vexedly on the fact that this very important journal is not on the shelves of London, the center of a world empire, while he had no difficulty in finding the complete file in the medical school of the University of California.)—The other remark is this: Research, as we all know, is being done on the possibility of correlation between blood type and the typology of disease incidence. This is where the geographical and racial distribution of blood types ties in with a problem of medicine.

By implication almost, the topic of constitutional type has run through this discussion; and I wish there were space here to dwell on it. Let it be tabled with the remark that the extensive studies of anthropologists like Sir Arthur Keith have led the latter to declare that knowledge of the evolution of endocrine patterns will be the key to understanding the evolution of man. This, I will add, must cover his differentiation within the primate stock, his present split up into races of varying pattern combinations of fetalization, brutalization, specialization, his variation under domestication.

The student of human biology must be interested in the phases of population growth and the questions of relative fertility between categories. The anthropologist's happy hunting ground stretches back to the age when the world was gray, and comes down to the roaring twentieth century. Naturally, most of the statistical dirty work is done by statisticians and sociologists trained in statistical methods. However, it stands to reason that we cannot well judge the complexion of present populational trends without such comparisons as evidence from the past will grant. In view of the fact, for instance, that in present day civilization the life expectation for women is slightly higher than for men (and therefore it will happen that female school teachers have to pay a higher premium on retirement insurance than do male), it is interesting to read a study on mortality rates in the early bronze of Lower Austria, which purports to show that, while sex ratios of living population were about as today, the median death age was lower than today, and lower for women than for men ( $\sigma$  21.8,  $\phi$  20.0).

There are fairly extensive studies on European records of the anthropometry of the several social and economic strata; e.g. on the growth manifestation in children. Italians have made some interesting studies of the change in character of their nobility. Some believe that with the maturing of civilization, the body-build and its psychic concomitants change—for causes undetermined—so that the early active sthenic constitutional type is replaced by an asthenic, contemplative one. In the early, youthful stage of a civilization, the aristocracy is prolific, but spendthrift of its men; gradually, as it becomes contemplative, it becomes relatively sterile and "parsimonious." Beyond this, they are busily engaged in analyzing the physique, mental traits, ideals of beauty and of the various social strata of the country in order to evaluate the intrapopulational fluxes and to prognosticate therefrom. Europe, I daresay, is far ahead of us in such matters, because social friction due to pressure of populational blocks is so much more painful. (We could, as anthropologists and historians, study this very phenomenon of self-study; perhaps we should take note that concern over

the quality and quantity of resources, whether forests, oil fields, or human stock, self-conscious as it is, indicates a coming exhaustion. In other words, is such study its own danger signal?)

We may be interested to note that the population of the United States has now passed its peak of growth, and has begun to decline. This decline is not as yet apparent to the majority, for the simple reason that they are accustomed to the crude measuring stick of the excess per year of births over deaths. The lower grades of our public schools have already begun to feel this change in the weather. What it portends for the future, I would not hazard to say; but it should be a matter of lively interest to the medical profession. We may yet have to face the issues of directed economy of human resources. Perhaps Malthus, whom the economists have discredited to everybody's satisfaction, may some day have a grotesque revenge.

No anthropological study of a population is complete without a survey of its pathology. It has been the good fortune of our science that frequently the anthropologist is also a physician. Hrdlicka, for instance, dean of American physical anthropologists and a physician, made a medical study some years ago of the Pueblo Indians. For another instance, there is extant a considerable body of literature on the physical pathologies of primitives within the British and French Empires. And whenever the archeologist unearths a graveyard or a plague pit, you will find some anthropologist sniffing about eagerly—if he can get some one to defray his expenses. That the data on pathologic incidence among earlier populations living under conditions different from our own furnish us a perspective for properly estimating our own times, goes without saying. Krogman a short time ago finished a study of the very important collection of remains from Tepe Hissar, Persia, where crossed the still uncrowded ways of life as early at least as 2000 B.C. Hooton, a few years ago, published a model monograph on the anthropology of the Indians of Pecos Pueblo. The bones showed the presence of arthritis (spondylitis deformans), various inflammatory lesions (periostitis, osteomyelitis), traumatic lesions, button osteomata, osteoporosis symmetrica, et al. Inflammations suggestive of syphilis occurred in a few pre-Spanish cases. Trauma of the cranium—fractured skulls—was more frequent among males than among females. When you have a series of remains stretching over a fair number of generations, the pathological history of a race, community, or other group, takes on significance.

I hope that the few illustrative instances I have given will have suggested implicitly numerous points of contact between medicine and anthropology—to say nothing of their contacts, in turn, with other branches of inquiry. That medicine and anthropology do have problems in common, is instanced by an open correspondence between Professor Hooton and Professor Wingate Todd, in issues of *Science*, 1936.<sup>4</sup>

It is too easy to ramble on over fields of common interest. Take teeth, for instance. The problems of orthodontia are medical. But human teeth are part

4. See further Hooton's article in *Forum*, for December, 1937; and his address published in the *Sigma Xi Quarterly*, March, 1935.

of a very peculiar complex. They belong to a muzzle that has undergone evolutionary changes unique in their proportions; yet this muzzle is subservient to the rules Nature has imposed on the primates. Each bone of that muzzle, and the details of each bone, declare this primate's strife to become—himself.

In political spheres, we would consider intelligent only those efforts to direct a people's destiny which took into first consideration the history of that people.

On this note we may close; but let us play it on another instrument. No one denies that the first duty of a fire brigade is to put out a fire. And yet, the fire department also has every reason to be concerned over the manner in which houses are built. The ideal of a good fire department is to work itself out of a job; to see to it that buildings are increasingly fireproof. But firemen do not rear buildings; engineers do. Nevertheless, the engineer heeds the fireman.

I am not equating the anthropologist with the engineer. But the anthropologist is one of the consultants, too. And he has much to talk over with the man of medicine. When do we get together?

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*The Draft: Selective Service*

Of prime interest at the moment is the fate of medical students and of prospective medical students as affected by the draft. Numerous committees and councils, advisory and mandatory, are considering this matter seriously and with good reason. The government services need many physicians. The medical colleges are the only source of supply because of the fact that their students, virtually all of them, are in the draft age bracket. Every student who is called for service lessens the number of physicians available eventually. Therefore it is most essential that their numbers be not reduced. Graduating classes have been steadily growing smaller despite the fact that every medical college has enrolled students up to the limits of their facilities for teaching. More than one-half of the students who apply each year for admission to medical colleges have been accepted. Every one worthy of acceptance has been enrolled. Therefore, it is not possible to increase the number of enrollees—which stresses the importance of not reducing the numbers of medical students. The annual output of about 5,100 graduates makes it possible to secure about 3,500 medical officers. To reduce that number will make it necessary to deplete the number of physicians in private practice to the danger point, leaving the civilian population without sufficient medical practitioners — which is most undesirable.

The executive officers of colleges, universities and medical colleges will do well to note information sent out by the American Council on Education which has been very active in efforts to bring about a satisfactory solution of this problem. In a recent Bulletin, No.

7, sent out by the Council, the following information is given:

"The legal department, National Headquarters, Selective Service System, has ruled that no man can be inducted into the land or naval forces from any classification other than I-A. Consequently all students who were originally classified by their local boards in I-D or I-E *must be reclassified* by the end of the present academic year, subject to induction at that time. This ruling is of vital importance to colleges and universities as it requires the local board to determine for each student individually whether he shall be classified in I-A (eligible for induction) or in II-A (deferred because of occupation).

"The problem of occupational deferment of selected students and faculty members will become increasingly acute. Previous bulletins, especially No. 6, have emphasized the need, in the interests of a sound, long-range defense program, of maintaining a continuous supply of trained men in those fields directly related to the 'national health, safety, or interest.' The responsibility for requesting deferment of individual students on an occupational basis to complete professional training rests as much upon the institution as upon the individual.

"The administrative practice of one large university may be suggestive. Students who receive their Selective Service questionnaires are requested to report the fact to the deans of their respective colleges. If, in the judgment of the dean, the field of the student's major and the quality of his work is such that he will better serve the 'national health, safety, or interest' by having his military service deferred until after procuring his degree, the dean prepares a statement on Form 42 setting forth the specific

reasons for requesting occupational deferment for the individual student. This statement is sent to the administrative officer of the university who reviews the data presented. If he approves the request he and he only signs the form and transmits it to the local draft board.

"Although there are not yet sufficient data to draw conclusions, preliminary findings of the national survey of decisions of local draft boards on the occupational deferment of college students indicate that comparatively few colleges have requested occupational deferment for their students and that, when such requests have been made, the decisions of local boards vary widely. One institution reported that two second year students in the medical school were classified by one board in II-A to complete their training, while a third year student in the same medical school was given I-D (deferred only until the end of the present academic year) rating by another board."

"The Committee on Preparedness" of the Association of American Medical Colleges is making every possible effort to assist every agency, Federal or not, in getting at a good and satisfactory solution of this whole problem. While it is not possible at the moment to make any definite statement as to the outcome of the matter, the committee is confident that a satisfactory solution will be reached in the near future. In the meantime, the local draft and appeal boards should be given every assistance to carry on in accordance with existing rules and regulations. Every case must be considered on its individual merits until rulings are made by the authorities which will permit other action.

#### *Ray Lyman Wilbur*

With the close of the present academic year, Dr. Wilbur will retire from the presidency of Stanford University after twenty-five years of service. Dr. Wilbur is one of the outstanding personages in the whole field of education, humanitarianism, pedagogy. As a teacher, dean

and president he made a record which will always remain outstanding. He accomplished many things which improved whatever he set out to do. He left everything better than he found it when first contacted. He has held many positions of influence and trust, more than any other man of his time, and in each instance he has left his mark as a stimulus for emulation by his successors. The Association of American Medical Colleges is proud to number Dr. Wilbur as one of its expresidents after many years of service as a member of its Executive Council. His wisdom and experience contributed much to the success of the work done by the Association. Our best wishes for his success in whatever field he may engage after his retirement go with him. We say "au revoir" not "goodbye."

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#### *Action of Colleges in re the Draft*

At the annual meeting of the Association of American Colleges held in Pasadena, California, January 10, 1941, the following resolution was adopted:

1. "It is the judgment of the Association of American Colleges that the best interests of total national defense require that the policy provided in the present Selective Training and Service Act of permitting college and university students to defer the call for military training and service until July 1, 1941, be extended by the Congress so that during the continuance of peace time conscription regularly enrolled college and university students may complete the academic year in which they may become subject to call."

If this resolution is heeded by the authorities, continuance of an adequate supply of medical students and therefore, young, well trained medical officers will be assured.

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#### *Maurice H. Rees*

The National Board of Medical Examiners gives information that Dr. Maurice H. Rees, dean, University of

Colorado School of Medicine, a member of the Executive Council of the Association of American Medical Colleges, and an expresident, was elected to membership on the Board to succeed the late Dr. Alexander S. Begg. Dr. Rees will represent the Association on the Board. The two other representatives are Dr. A. Graeme Mitchell, University of Cincinnati, and Dr. Stanhope Bayne-Jones, Yale University. Dr. Rees' term will expire in May, 1946.

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*Dr. Claude A. Burrett*

Dr. Claude A. Burrett, 62, president of New York Medical College and Flower-Fifth Avenue Hospital, died March 3rd of a cerebral hemorrhage. Dr. Burrett was a member of the faculty of the University of Michigan for nine years and later dean and professor of surgery at Ohio State university. He became dean and professor of surgery of the New York Medical College in 1925 and president in 1937.

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*Medical Education  
in the Philippines*

Dr. Fred C. Zapffe recently returned from a visit to the Philippines made at the request of the Philippine Commonwealth for the purpose of inspecting the College of Medicine as well as the University of the Philippines.

Many outstanding achievements were found. Because the scourges, from a health viewpoint, of the Island are Tuberculosis, malaria and leprosy. Therefore, the activities to conquer these diseases are in the foreground of all health activities. The Quezon Institute, devoted to the treatment of tuberculosis and the spread of the gospel of prevention is one of the finest of its kind. Its very able director, Dr. Miguel Canizares, and a large well trained and active staff of about fifty full time workers, are doing excellent work. It was amazing to learn that from 150 to 200 fills and refills are made daily on in and out patients. Outposts in other islands than Luzon are also quite active.

The malaria control work is going forward at a rapid pace under the direction of Dr. Ejercito and is accomplishing desired results. Wherever this unit has been operating malaria has been eradicated completely although the harmless mosquitoes are still much in evidence.

A new leprosy colony, designed to be a real city where lepers may live in comfort as real human beings, is now under construction not far from Manila. All lepers, those now confined in the San Lazaro Hospital in Manila and those at Culion on Palawan, will be removed to the new site as soon as room can be made for them in newly constructed houses. Culion will be closed as there are now only about 350 lepers in that colony, about 900 at San Lazaro and 400 in the new colony. Treatment with chaulmoogra oil ester is being pushed and is producing many negative cases. Dr. Rodriguez, a competent leprologist, is in charge of the new colony.

Preventive medicine and public health measures are being pushed splendidly under the able direction of Dr. Hilario Lara, who has been loaned temporarily to the newly created Department of Public Health as under-secretary to assist in its organization and to bring it into close cooperation with his department in the College of Medicine.

The entire university, including the College of Medicine and a new teaching hospital of about 800 beds will be moved to a new site in Quezon City as soon as construction is completed, probably within a year or two. The College of Medicine has been allotted 14 hectares. It, too, is doing fine work under the direction of the dean, Dr. A. G. Sison, who is also the director of the Philippine Hospital and the Institute of Hygiene. The hospital now has 800 teaching beds; two new wings are being added and a new Cancer Institute will be ready to function by May 1st. The accomplishments of this whole group was a revelation and deserves unstinted praise.

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## College News

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### *Western Reserve University School of Medicine*

Dr. John A. Toomey, professor of clinical pediatrics and contagious diseases in the School of Medicine of Western Reserve University, has received a grant of \$1,000, supplementary to the \$2,760 already made to him this year by the National Foundation for Infantile Paralysis, the organization which gathers its funds at the president's annual birthday party. The money has been sent to Dr. Toomey to allow him to do additional work on his research on poliomyelitis.

Western Reserve University recently received two grants from Commodore Louis D. Beaumont, formerly of Cleveland, now residing in Florida. The first of the grants is in the sum of \$5,000 to be used for general university maintenance; the second in the sum of \$8,500 is to continue the research being carried on by Dr. Harry Goldblatt, professor and associate director of the Institute of Pathology, who has been studying hypertension.

Since 1933-1934 Commodore Beaumont has given \$5,000 each year to the general university fund and his grants to Dr. Goldblatt's work since 1934-1935 amount to \$48,000. Besides this, since 1934 he has given sums to Cleveland College, the down-town night school of Western Reserve University, amounting to \$4,500.

Dr. William C. McCally, assistant clinical professor of surgery, was honored by the chapter of the School of Medicine of Western Reserve University of Nu Sigma Nu at the annual student initiation banquet at 7 p.m. at Wade Park Manor, Friday, February 21. J. William Derr, junior president of the chapter, presented Dr. McCally with an alumni trophy pin, and in an informal speech cited him as an all-round good pal to the students.

Dr. McCally was recently named as director of the surgical division of Base Hospital No. 4, with the rank of Lieutenant Colonel, which unit is ready to be mobilized by the government.

Dr. Clyde L. Cummer presided at the banquet, and Dean Torald Sollmann and Dr. Harold N. Cole spoke.

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### *University of California Medical School*

A post graduate course, emphasizing the preventive aspects of pediatrics, was held December 16 to 21, 1940. Dr. Amos U. Christie, associate professor of pediatrics, was in charge. The course, a part of a program for instruction in child and maternal health in which the Medical School is cooperating, was given for health officers from the various western states. Thirteen physicians were enrolled, including one from California, three from Arizona, six from New Mexico and three from Utah.

A course for general practitioners, "The Clinical Aspects of Dermatology" was given at the University of California Hospital, January 6 to 8, 1941. The program included discussions on "Dermatologic Manifestations of Systemic Disease," "Vitamin Therapy," "Treatment of Acne," "Cutaneous Malignancy," "Various Methods in the Treatment of Syphilis," "Skin Problems in Children," "Poison Oak Immunization," "Dermatophytosis," "Dermatology and Industry," "Allergy in Dermatology" and "Dermatologic Therapy."

A bust of Hippocrates has been given to the Division of Medical History and Bibliography by Dr. Pan S. Codellas and other members of the Greek colony of San Francisco. Formal presentation was made at exercises, commemorating the birth of Hippocrates, at which Dean Emeritus Langley Porter presided. Speakers on this occasion were Drs. Wil-

liam Dock and Frederick Reichert of Stanford University School of Medicine and Drs. William J. Kerr, Chauncey D. Leake, John B. Saunders, Salvatore P. Lucia and Dr. Codellas of the University of California Medical School. The bust has been put in the Crummer Room, which houses an interesting and valuable collection of books and other material on the history of medicine.

Dr. Carl L. A. Schmidt, Professor of Biochemistry, and Vice President Earle R. Hedrick of the University of California at Los Angeles, were present, as delegates from the University of California, at the Bicentennial Celebration of the University of Pennsylvania.

Dr. Theodore L. Althausen, Associate Professor of Medicine, has been invited to participate in the summer course at the University of Hawaii, Honolulu, Hawaii, where he will give a course on "Fundamentals of Health and Disease."

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*Boston University  
School of Medicine*

Dr. Bennett F. Avery of Michigan and Beyreuth, Syria, has been appointed dean of Boston University's 92 year-old school of medicine. He will succeed the late Dean Alexander S. Begg. Dr. Avery received B.S., M.S., and M.D. degrees from the University of Michigan, taught anatomy for one year there under Dr. G. Carl Huber, and in 1926 went as Adjunct Professor of Anatomy to the American University in Beyreuth. He was later advanced to rank of full professor and was also made acting dean of the school.

Besides experience as Acting Dean, Dr. Avery has been chairman of the medical curriculum committee for the past eight years, in connection with which he has studied medical curricula throughout the world. He has also been chairman for the past six years of the preclinical committee, a position which involved largely the direction of the first two years of medicine. In addition, he has served as a three-man advisory committee for the division of medicine since

it was organized, and has assisted in revising and rewriting the University Constitution and by-laws for the division of medicine.

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*University of Havana and Cornell  
University Medical Faculties*

Faculty representatives of the University of Havana and Cornell University Medical Colleges held a week's series of conferences at the New York Hospital-Cornell medical center. Under an exchange agreement between the two medical colleges, a number of students and faculty members are sent to New York or Havana each year for teaching and study.

A feature of the meetings was a special session of the New York Society of Tropical Medicine. The Havana doctors were honored at a luncheon given by the Board of Governors of the New York Hospital and at a dinner given by the Cornell Medical College faculty. The visiting group was headed by Dr. Angel Vieta Barahona, Dean of the medical school, and included Drs. Alberto Inclán, C. E. Finlay, Felix T. Hurtado, Alfredo Antonetti and E. L. R. McGough.

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*University of Virginia  
Department of Medicine*

The Seventh Annual Post-Graduate Course in Ophthalmology and Otolaryngology sponsored by the University of Virginia was held at the Medical School from December 10th to 13th. The list of those giving lectures included the following: Dr. Marvin F. Jones, Director of Otolaryngology, Manhattan Eye, Ear and Throat Hospital; Dr. Andrew A. Eggston, Director of the Laboratories and Consultant Physician, Manhattan Eye, Ear and Throat Hospital; Dr. James Milton Robb, Chief, Eye, Ear, Nose and Throat, City of Detroit Receiving Hospital; Dr. Robert E. Moran of Washington, D. C.; Dr. David H. Massie, Instructor in Dentistry, University of Virginia Hospital; Dr. Harry S. Gradle, Chief of the Staff,

Illinois Eye and Ear Infirmary; Dr. Frank B. Walsh, Associate Professor of Ophthalmology, Johns Hopkins University; Dr. Ralph I. Lloyd, Lecturer in Ophthalmology, New York University Medical School; Dr. F. Brittain Payne, Surgeon and Assistant Pathologist, New York Eye and Ear Infirmary; and Commander J. R. Poppen, Bureau of Aeronautics, U. S. Navy. Thirty-nine physicians registered for the course.

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*Duke University  
School of Medicine*

On Nov. 29-30, 1940, the Tenth Anniversary of the opening of the School of Medicine and Hospital was celebrated and the new Department of Neuropsychiatry was dedicated. One hundred and twenty medical alumni and former members of the house staff were present. Dr. Adolf Meyer, Henry Phipps Professor of Psychiatry of the Johns Hopkins University School of Medicine, addressed the staff, students and alumni on Considerations on Psychiatry or Ergasiatics as an Essential and Natural Part of All Medical Training and Practice. Special clinics and talks were given by Dr. R. L. Flowers, F. M. Hanes, D. T. Smith, Deryl Hart, Bayard Carter and W. C. Davison.

On Nov. 29, 1940, the Duke University School of Medicine Alumni Association was organized with the following officers: J. M. Arena, president, R. W. Graves, vice-president, J. L. Callaway, secretary-treasurer, L. D. Baker, corresponding secretary.

On December 11, 1940, Dr. Lee E. Farr, Director of Research of the Alfred I. duPont Institute of the Nemours Foundation held a clinic on the Treatment of Nephritis.

At the beginning of the winter quarter, there were 239 medical students, 66 first year, 65 second year, 65 juniors, and 43 seniors.

Dr. Laurence H. Snyder, Professor of Medical Genetics at Ohio State University School of Medicine, held weekly lectures on "Medical Genetics" in January, February, and March.

At the meeting of the Duke Medical Society on January 14, Dr. Tinsley R. Harrison, newly appointed Professor of Medicine at the Bowman-Gray Medical School of Wake Forest College, spoke on "Hypertension." Dr. Wingate Johnson, Professor of Clinical Medicine at the Bowman-Gray Medical School of Wake Forest College, discussed the paper.

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*Long Island  
College of Medicine*

It was announced recently that the Long Island College of Medicine had received gifts and grants totaling \$25,080.22 made during the period from January 1st, 1940, to October 1st, 1940.

Approximately two-fifths of the amount received, \$10,312.50, was given for continued research in the department of Preventive Medicine and Community Health.

A symposium on the vitamins was held in the College, January 23, 1941. The program consisted of the following:

"Avitaminosis in Medicine and Surgery"—Dr. Thomas T. Mackie, attending physician, Roosevelt Hospital; "Avitaminosis in Obstetrics"—Dr. Alfred C. Beck, professor of obstetrics and gynecology, Long Island College of Medicine; "Avitaminosis and Dermatology"—Dr. Arthur W. Grace, professor of clinical dermatology and syphilology, Long Island College of Medicine; "Avitaminosis and Pediatrics"—Dr. Benjamin Kramer, professor of clinical pediatrics, Long Island College of Medicine; "Avitaminosis in Oral Conditions"—Dr. C. Raymond Wells, director of oral surgery, Queens General Hospital; "Avitaminosis and Nervous Diseases"—Dr. H. Russell Meyers, departments of physiology and neurology, Long Island College of Medicine.

Since 1917 there have been fifty-five women graduates of Long Island College of Medicine and there are twenty-five women students at present at the school, ten of whom are in the freshman class. At the request of the faculty, the chairman of the Committee on Admis-

sions sent a questionnaire to the thirty-four women who graduated during the years 1920-1935. Of the thirteen who replied, all took internships and are now in active practice. All are members of their county medical societies. Four are in general practice, two in obstetrics and gynecology, one in obstetrics and pediatrics, one in psychiatry and one in public health.

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*New York  
Medical College*

On January 24th, 1941, Dr. Paul D. White, Lecturer in Medicine, Harvard University Medical School and Physician in Charge of Cardiac Clinics, Massachusetts General Hospital, delivered a lecture on "Arteriosclerotic Aneurysms of the Aorta" before the Academy of Pathological Science at the New York Medical College, Flower and Fifth Avenue Hospitals.

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*New York University  
College of Medicine*

The fourth series of the John Wyckoff Lectures was delivered by Dr. John R. Paul, Professor of Preventive Medicine at the Yale University School of Medicine, February 4 and 5, 1941. The subject of Dr. Paul's lectures was "The Clinical Epidemiology of Poliomyelitis." These lectures were established by the Phi Delta Epsilon Fraternity in 1937 in memory of the late Dean John Wyckoff.

New York University College of Medicine is presenting a course in amputations at the City Hospital, Newark, Saturday mornings from March 1 to April 12. Dr. Henry H. Kessler, Newark, will be director of the course, which will be given for not less than six nor more than eighteen physicians.

Dr. Paul F. Schilder, research professor of psychiatry, died in December as a result of automobile accident injuries.

Promotion: Dr. Leonard J. Goldwater, from instructor in preventive

medicine to assistant professor of preventive medicine.

Appointments: Dr. Clair E. Folsome, assistant clinical professor of obstetrics and gynecology; Dr. Willis Knighton, Dr. Samuel P. Oast, and Dr. Brittain F. Payne, assistant clinical professor of ophthalmology; Dr. Francis A. Echlin, assistant clinical professor of neurosurgery; Dr. Harold B. Keyes, assistant clinical professor of surgery.

Dr. Robert P. Wadhams, professor of clinical surgery, died of heart disease.

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*University of Minnesota  
Medical School*

Dr. F. Peyton Rous of the Rockefeller Institute for Medical Research delivered the Tenth Annual George Chase Christian Lecture, February 5th. The title of Dr. Rous' lecture was "Present Knowledge of Carcinogenesis." At a luncheon round table on the day of the lecture, Dr. Rous discussed "Latent Neoplastic Changes and Conditional Tumors." Tentative plans are being made for Dr. Rous to participate in a seminar on cancer to be arranged by Dr. E. T. Bell of the Cancer Institute Committee.

Dr. Paul D. White, Lecturer in Medicine at Harvard University and Physician to the Massachusetts General Hospital, delivered a special lecture, February 28th, entitled "Enlargement of the Heart."

Dr. Hendrik Dam, Associate Professor of Biochemistry, University of Copenhagen, delivered a lecture, February 24th, entitled "Vitamin K — Biochemistry and Clinical Applications."

First to hold the Harold Rypins Research assistantship in pediatrics at the University of Minnesota Medical School is Dr. Luigi Luzzatti.

The assistantship was established in honor of the late Dr. Rypins, who was a member of the faculty of the University Medical School for a number of years before going to New York to become secretary of the state board of medical examiners. The assistantship

was established by a committee of Twin City physicians, aided by a group of interested and generous persons.

A new degree, Master of Public Health, is to be conferred by the University of Minnesota through the Medical School, as the result of action taken at a recent meeting of the board of regents.

The degree replaces a certificate in public health, which previously has been issued to those completing the work. Candidates for the new degree are required to have prior professional training and a prior professional degree—that is, be graduate physicians, dentists, veterinarians, or graduate nurses who already hold a bachelor degree in public health nursing.

The program of studies leading to the degree will contain not less than forty-five credit hours of professional work in preventive medicine and public health.

Dr. Carl R. Moore, Chairman, Department of Zoology, The University of Chicago, will present the annual Clarence Martin Jackson Lecture on the evening of Wednesday, March 19, in the Medical Sciences Amphitheatre. Dr. Moore's lecture is entitled: "The Significance of Hormones in Embryonic Sex Differentiation."

The Jackson Lectureship was established in 1933 by Phi Beta Pi Fraternity in honor of Dr. Clarence M. Jackson, Professor and Head, Department of Anatomy, since 1913.

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#### *University of Vermont College of Medicine*

All draft examinations in Chittenden County Number One district, which includes the city of Burlington, are being handled by the Burlington City Dispensary, which is run by the Medical College of the University of Vermont and the city. Dr. T. H. Harwood, Director of the Dispensary, has supervision over the work, which is largely done by medical students who are on Dispensary service. The students, juniors in medical

school, make the examinations, and Dr. Harwood checks any questionable points. Since the Dispensary took over the draft examinations in January, approximately 100 men have been examined. An indication of the thoroughness of the job done by the Dispensary is to be found in the fact that only one of the Burlington selectees who went to Rutland following the tests given at the Dispensary was rejected on the final physical examinations given before entering the Army.

About six prospective draftees are examined daily at the Dispensary. Only single men are being examined. Medical students in groups of eight spend a month each at the Dispensary. The draft examinations are only part of their duties, which also include laboratory work and seeing patients at the Dispensary.

Dr. G. C. Berkley, of St. Albans, has presented the University of Vermont with a case of surgical instruments once, apparently, the property of Dr. William Beaumont. Doctor Beaumont obtained much of his medical training in an apprenticeship under Dr. Benjamin Chandler, who practised at St. Albans in the period around 1800 and for a number of years thereafter.

Shortly after settling in Champlain, New York, in 1807, Beaumont began his medical studies by "reading medicine" under Dr. Seth Pomeroy, of Burlington. In 1810, Beaumont went to St. Albans to begin his apprenticeship under Doctor Chandler. He remained there two years, his schooling consisting of bedside experience, dissection of amputated material, and extensive reading.

The Springfield Hospital, Springfield, Massachusetts, and the Worcester City Hospital, Worcester, Massachusetts, are giving service as affiliated teaching hospitals in obstetrics, pediatrics, dermatology, and urology. Members of the staff in both hospitals have been added to the faculty. Students will be assigned for teaching in these hospitals for a definite period. A full time anesthetist has been appointed at the Mary Fletcher Hospital, Burlington.

*University of Cincinnati  
College of Medicine*

Dr. Dennis E. Jackson, professor of pharmacology, has been requested to donate to the American Society of Anesthetics, one of his first milk bottle CO<sub>2</sub> absorption outfits. This is to be placed in their permanent museum.

Since January, 1, 1941, the College of Medicine has received grants-in-aid gifts to the various departments, amounting to approximately \$70,000.00. The following list includes some of the donors and the divisions to which the grants have been made: \$7,500.00 grant from Anheuser-Busch, Inc., for work in nutritional diseases; \$7,000.00 from the John and Mary R. Markle Foundation for work in nutritional diseases; \$2,000.00 from E. R. Squibb & Sons for work in nutrition (these three grants, for work in nutrition, have been contributed to carry forward the joint experiment of the University of Cincinnati and the Hillman Hospital in Birmingham, Alabama); \$7,796.00 from the National Advisory Cancer Council toward the study of cancer in the medical department, gastric laboratory; \$2,400.00 from the National Advisory Cancer Council to be used for a study of surgical methods of diagnosis and treatment of cancer; \$2,500.00 from Mrs. Lilly A. Fleischmann to continue the work of the Craig Leiser Pneumonia Laboratory; \$7,500.00 for work in nutritional diseases from the Rockefeller Foundation; \$2,000.00 from the Lederle Company for study of Blood Pressure reducing substance in the Department of Biological Chemistry; \$12,500.00 gift (anonymous) to the departments of Medicine and Surgery; \$9,500.00 (anonymous) to support the Heart Station in the Department of Medicine for the coming year.

The Committee on Research in Dementia Praecox organized by the Scottish Rite Masons renewed its grant of \$1,000 to the University of Cincinnati College of Medicine for the second year and increased it by \$500, the college recently reported. The following promotions in the medical faculty were an-

nounced: Dr. Alphonse R. Vonderahe to associate professor of anatomy; Drs. John H. Skavlem and Leon Schiff, associate professors of medicine.

Dr. Henry B. Freiberg, assistant professor of clinical surgery (urology), died January 22nd of pulmonary thrombosis.

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*University of Illinois  
College of Medicine*

The Charles Sumner Bacon Lectures for 1940-1941 were delivered, February 12 and 13, by Dr. Hendrik Dam, member of the Biochemical Institute, University of Copenhagen. His subject was "Vitamin K," which he discovered.

Dr. Paul C. Bucy has been appointed Associate Professor of Neurology and Neurological Surgery at the University of Illinois College of Medicine, Chicago. Dr. Bucy succeeded Dr. Percival Bailey as chief neurological surgeon at the University of Chicago when Dr. Bailey joined the staff of the University of Illinois in September, 1939.

Both men are now associated with Dr. Eric Aldberg, Professor and Head of the Department of Neurology and Neurological Surgery, in the new Neuropsychiatric Institute which has just been completed on the Chicago campus of the University of Illinois.

The Graduate School of the University of Illinois has established four research fellowships to be awarded for one year in the fields of medicine and dentistry in Chicago at a stipend of \$1,200 a year (calendar year with one month's vacation). Fellows are eligible for reappointment in competition with the new applicants. Candidates for these fellowships must have completed a training of not less than 8 years beyond high school graduation. This training may have been acquired in any one of the following ways, or the equivalent thereof:

1. Work leading to the B.S. and M.D. degree (in some instances the candidate would have the M.D. degree, or an additional year or two of hospital training beyond the intern year).

2. Work leading to the B.S., M.S. and D.D.S. degrees.

3. Work leading to the B.S. or B.A. degree in a four year collegiate course and to the D.D.S. degree.

4. Work leading to the B.S., D.S. and M.D. degrees.

Announcement of the fellowship awards will be made April 1, becoming effective September 1. Formal application blanks may be secured from the Secretary of the Committee on Graduate Work in Medicine and Dentistry, 1853 West Polk Street, Chicago.

The entire senior class has petitioned the deans of the school requesting that the M.D. degree be awarded in June. Their action was prompted by the belief that the M.D. degree would qualify them to do medical work in case they were conscripted, and would give those who desire an opportunity to join the medical reserve corps.

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#### *Wayne University College of Medicine*

Plans for a \$50,000,000 program to build and operate a medical educational center in Detroit have definitely taken shape. A group of doctors has been studying the plans, which have received the endorsement of the Detroit Board of Education, the council of the medical society, officers of the University, trustees of the Wayne University Foundation, and the advisory council of the medical school faculty. Four or five city blocks would be set aside for the center, forming a site for eight buildings at an estimated cost of between \$10,000,000 and \$12,000,000. The program proposes to raise \$50,000,000 from donors, the major portion to be used to support the work of the center, for research, and for the personnel of the faculty. Maintenance would be left to the board of education, and the present budget of the medical school would be sufficient for permanent maintenance of the campus and its buildings. The Wayne University Foundation was organized in 1938 to receive, manage, and

disburse grants and gifts to Wayne University and to promote scientific research and investigation.

Fourteen and one half acres, privately owned, have been acquired for the center, which is to include sixteen buildings when completed. It is estimated that construction will take five years, but present plans call for the completion of one unit of the hospital and the medical science building by next fall. The entire project will be owned by the Detroit Board of Education. A group of Detroit physicians has already raised eight million dollars of the total.

Dr. Armand Quick, Associate Professor of Pharmacology at Marquette University College of Medicine, was guest speaker at the student convocation at Wayne University College of Medicine, held February 10. Doctor Quick's subject was "Hepatic Functions and the Significance of Liver Function Tests."

New appointments: Carl C. Pfeiffer, M.D., Associate Professor of Pharmacology; Mark Maun, M.D., Assistant Professor of Pathology; George L. Maisson, M.D., Assistant Professor of Physiology; Lawrence Berman, M.D., Assistant Professor of Pathology; Muir Clapper, M.D., Instructor in Medicine.

The newly organized student-faculty glee club of thirty-six members, directed by Leroy W. Juhnke, was enthusiastically received at their first public appearance.

Dr. Paul J. Hanzlik, Professor of Pharmacology at Leland Stanford University, addressed the student body at Wayne University College of Medicine, February 22, speaking on the subject "The Stabilizing Power of Pharmacology." Doctor Hanzlik was introduced by one of his former students and associates, Dr. Arnold J. Lehman, who is Associate Professor of Pharmacology at Wayne.

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#### *Northwestern University Medical School*

A gift of \$50,000 from Miss Edith L. Patterson, Sterling, Illinois, as additional endowment for the Patterson

cancer clinic at Passavant Hospital, Northwestern University, was recently announced.

Northwestern University has received \$635,000 from the estate of the late Dr. John S. Appleman, it is reported; \$135,000 is restricted to use of the medical school clinics. Announcement has also been made of a gift of \$162,000 from the Clara A. Abbott trust for advancement of medical, chemical and surgical science. Mrs. Abbott, widow of Dr. Wallace C. Abbott, founder of the Abbott Laboratories in North Chicago, previously had given the university \$1,500,000 for similar purposes.

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*University of Pittsburgh  
School of Medicine*

The School of Medicine has received a gift of Fifty Thousand Dollars (\$50,000) from Mrs. Alan M. Scaife of Pittsburgh, to be used for the construction of a cyclotron for the treatment of patients and also for the production of radio active materials in experimental work.

Dr. deWayne G. Richey, assistant professor laryngology and rhinology, died in December.

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*Louisiana State University  
School of Medicine*

Dr. Chester Arthur Stewart, pediatrician and authority on childhood tuberculosis has been appointed professor and head of the department of pediatrics in the Louisiana State University School of Medicine, effective July 1, 1941.

Dr. Stewart is a native of Missouri and received his A.B. degree from the University of Missouri in 1914, where he completed the first two years of the medical course. He transferred to the University of Minnesota where he received a Master's degree in Anatomy in 1915, a Ph.D. degree in Anatomy in 1917, and an M.D. in 1919. In 1921, he received a Ph.D. in Pediatrics. From 1914 to 1917, he served as instructor in the Department of Anatomy at the

University of Minnesota School of Medicine and from 1917 to 1919, as instructor in pathology at the same institution. In 1920-1921, he was a fellow in pediatrics at the University of Minnesota. He was promoted to the position of Assistant Professor of Pediatrics in 1922 and is at present Clinical Professor of Pediatrics and Director of the Out-patient Department at the University of Minnesota.

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*Tufts College Medical School*

J. Willard Hayden, president of the Charles Hayden Foundation, has awarded a grant of \$10,000 to the Medical School to be used for scholarships for selected members of the entering class in that school next fall. Following the regular plan of the Charles Hayden Memorial Scholarships in other institutions, a portion of this total will be used for outright scholarships during the first year of medical study. The remainder will be held as a special loan fund to be used in upper-class years by those who held Hayden scholarships during the first year. Dr. Cadis Phipps, professor medicine, will serve as chairman of the committee administering the scholarship grants.

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*Woman's Medical College  
of Pennsylvania*

Dr. Robert G. Torrey, Professor of Medicine, died January 11, 1941 after a brief illness. His appointment at the College dated from July, 1931. Dr. Torrey was a Fellow of the American College of Physicians and the College of Physicians of Philadelphia, and a member of the Philadelphia County Medical Society, the American Medical Society, the American Rheumatism Association and the American Heart Association. He was associate in medicine at the University of Pennsylvania Medical School and medical examiner for the division of tuberculosis of the Philadelphia Health Department.

On January 2nd, Dr. Bertha Van Hoosen, of Chicago, Special Lecturer in

Gynaecology, lectured to the third and fourth year students on "Surgery Made Plain."

The Lecture Forum of the College presented on February 14th a symposium on "Chronic Cumulative Lead Intoxication." Speakers were Mr. Feodor Letonoff, Dr. John Reinholt, and Dr. Helena E. Riggs.

During 1941, the Woman's Medical College of Pennsylvania is offering a lecture course in "Applied Medico-Genetics." The lectures are open to physicians and medical students interested in the subject. Dr. Clyde E. Keeler, Fellow of the Wistar Institute, University of Pennsylvania; Dr. Charles B. Davenport, formerly Director of the Station for Experimental Evolution and Director of the Eugenics Record Office; Dr. Madge T. Macklin, Assistant Professor of Anatomy, Western Ontario Medical School, and Dr. Frederich Osborn, President of the American Eugenics Society, are among the lecturers. Although a number of medical schools now offer occasional lectures on this subject by members of their local faculties, this series of lectures in continuation of a group presented last year, is to our knowledge the first symposium on this subject sponsored by a medical school in this country. The lectures outlined last year were printed in book form under the title of "Medical Genetics and Eugenics." It is hoped that this year's symposium may also be published.

Dr. Catherine Macfarlane, Professor of Gynaecology, has received a grant of \$1,200 from the International Cancer Research Foundation. Dr. Macfarlane, on December 30, 1940, received the Gimbel Award of \$1,000 as Philadelphia's outstanding woman of 1940.

Dr. Rachelle S. Yarros, a graduate of the College, Class of 1893, has been awarded Honorary Life Membership in the American Social Hygiene Association "as recognition of service to humanity and as a token of the affectionate esteem in which she is held by her fellow Americans."

At the request of Dr. Hugh S. Cumming, Director of the Pan American Sanitary Bureau, Pan American Health Day was observed on December 2nd. The principal speaker was Dr. Damaso de Rivas, Assistant Professor of Parasitology at the University of Pennsylvania, who spoke on "the Problem of Malaria Control." Five students from Puerto Rico and the Canal Zone gave short talks on local health problems in their own countries.

On December 13th, Dr. Rufus M. Jones, Emeritus Professor of Philosophy at Haverford College and Chairman of the Friends' Service Commission for European Relief, gave a stimulating talk to the students and invited guests on "What Life Means." This was sponsored by the Young Women's Christian Association of the College.

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#### *George Washington University School of Medicine*

The Ninth Annual Post Graduate Clinic was held February 14 and 15. Dr. Harry F. Dowling, Clinical Professor of Medicine was the Director of the Clinic.

Dr. Charles W. Mayo, of the Mayo Clinic, Rochester, Minn., conducted a clinic on diseases of the colon.

The program was dedicated to Dr. William Johnston Mallory, professor emeritus of medicine. Two sessions were held under the auspices of the A.F.A. King Obstetrical Society. Ward rounds at the Galinger Municipal Hospital were conducted by Dr. Walter A. Bloedorn, Dean of the School of Medicine.

Other speakers were Dr. Isador M. Lavine, President of the A.F.A. King Obstetrical Society; Dr. Samuel M. Dodek, University Associate in Obstetrics and Gynecology; Dr. Louis H. Douglass, professor of obstetrics at the University of Maryland School of Medicine, who spoke on "Toxemias of Pregnancy"; Dr. M. Edward Davis, associate professor of obstetrics, Rush Medical College, Chicago, Illinois,

spoke on "Physiology, Chemistry and Clinical Application of the Estrogens;" Dr. Robert A. Ross, associate professor of obstetrics and gynecology, Duke University, on "Management of Uterine Prolapse;" Dr. Tom D. Spies, associate professor of medicine, University of Cincinnati College of Medicine, "Clinical Aspects of Nutritional Diseases;" Dr. Charles Stanley White, professor of Surgery, George Washington University, "Use of Plasma in Surgery."

Dr. Paul D. White, lecturer in medicine, Harvard Medical School, conducted a clinic on "Heart Diseases."

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#### *The University of Oklahoma School of Medicine*

Seventeen (17) members of the Faculty of the University of Oklahoma School of Medicine and of the Staff of the University and Crippled Children's Hospitals have been called to active service in the Army, (and one in the Navy) by reason of the fact that they held commissions in the Medical Corps of the National Guard of the State of Oklahoma or commissions in the Medical Reserve Corps of the United States Army and Navy.

The two-year rotating internship in the University and Crippled Children's Hospitals, which are the teaching institutions of the University of Oklahoma School of Medicine, have been improved by the addition of the following training for interns: one (1) period will be served in the Central State Hospital at Norman, Oklahoma, which is a hospital for mental diseases with a capacity of 2,800 beds, and one period to be served in the Western Oklahoma Tuberculosis Sanatorium at Clinton, Oklahoma, a hospital of 350 bed capacity.

The lectureship held annually and formerly known as the LeRoy Long Lectureship sponsored by the Phi Beta Pi Fraternity, is now known as the LeRoy Long Memorial Lectureship as a tribute to the memory of the late Dr. LeRoy Long who died in October, 1940. Dr. Long was Dean of the University

of Oklahoma School of Medicine from 1915 to 1931.

Dr. Charles F. DeGaris, Professor of Anatomy, has recently received a prize of \$200 awarded by the New York Academy of Sciences for his work in the study of "Aortic Arch in Primates." This is a result of fifteen years of careful study and research. Dr. DeGaris was formerly associated with the Department of Anatomy, Johns Hopkins University.

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#### *University of Alabama School of Medicine*

Dr. Frank A. Kay of the staff of the Alabama State Hospitals gave a series of three lectures February 10, 17 and 24. The lectures were intended to orientate psychiatry with general medicine in the minds of the medical students. The subjects of Doctor Kay's lectures were: "Concept of Psychiatry. Correction of Misconceptions and Brief Survey of What Psychiatry Embraces." "Emotional Factors in Diseases. Neurotic Symptoms and Neuroses." "Treatment in Psychiatry."

Dr. S. R. Detwiler, professor of anatomy, Columbia University, lectured November 25th on "Biological Aspects of Vision," under the auspices of the Alabama Chapter of Sigma Xi.

Dr. Tom Douglas Spies, Professor of Medicine, University of Cincinnati, delivered a lecture on, "Pellagra and other Deficiency Diseases," on Friday, February 28th. The lecture was sponsored by the local chapter of Alpha Epsilon Delta, honorary pre-medical fraternity.

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#### *University of Western Ontario Faculty of Medicine*

Dr. William W. Bryan has been appointed professor of radiology and radiologist at the Victoria Hospital, London, O.

Following his graduation from the Emory University, Atlanta, Georgia, Dr. Bryan served as House Officer in the Jackson Memorial Hospital, Miami, Florida, during 1932 and 1933. He

was House Officer and resident in radiology at the Peter Bent Brigham Hospital, Boston, under Dr. Merrill C. Sosman from 1933 until 1935 and was assistant in radiology at the Harvard University Medical School in 1934 and 1935. He was roentgenologist at the Grady Hospital, Atlanta, Georgia, and instructor in surgery (radiology) in the Emory University School of Medicine 1935 to 1937. Since that time Dr. Bryan has been assistant radiologist at the Royal Victoria Hospital, Montreal (1937-1940) and assistant demonstrator of radiology in McGill University from 1938 to 1940.

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*Ohio State University  
College of Medicine*

The College of Medicine of Ohio State University, Columbus, Ohio, announces its Eighth Post Collegiate Assembly, April 15, 16, 17. Symposia conducted by the faculty on pertinent topics and also seminars in which visiting physicians may discuss their problems, make up the body of the program.

Dr. Henrik Dam, Ph.D., the discoverer of Vitamin "K," Associate Professor, Bio-chemical Institute, Copenhagen, Denmark, will be a guest speaker on Thursday afternoon, April 17. Dr. Dam's subject will be "Vitamin K, (a) Its General Significance in Biochemistry, (b) Its Role in Human Pathology and Its Application in Therapeutics." The Annual Alpha Omega Alpha Lecture will be the opening event on the evening of April 15.

A special study course for the American College of physicians will be conducted this same week by the Department of Medicine, Division of Research Medicine. All physicians attending the Post Collegiate Assembly are welcome to these sessions on the 16th and 17th, when subtopics are presented on the general theme "Clinical Medicine from the Hematologic Viewpoint."

A joint meeting with a symposium on Blood Transfusion is scheduled the afternoon of the 16th. Dr. Paul Hoxworth, Resident Surgeon, Cincinnati

General Hospital, will present movies with a lecture on "Organization and Operation of a Blood Bank and Volunteer Donor Bureau for Cincinnati."

Class reunions on the evening of April 16th, with fraternity banquets on the 17th, will complete the homecoming events celebrating the College's one hundred and seventh anniversary.

A detailed program is published in the April Ohio State Medical Association Journal.

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*Jefferson Medical College*

The William Potter Memorial Lecture was delivered by Henrik Dam, Ph.D., Associate Professor, Biochemical Institute University of Copenhagen, Denmark, January 10, 1941. His subject was "A Survey of the Present State of Knowledge on Vitamin K."

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*University of Kansas  
School of Medicine*

The new \$225,000, four-story Outpatient Clinic Building was recently placed in operation. This Dispensary is completely equipped, and averages about 75,000 outpatient visits annually. Dr. Edward H. Hashinger is Director.

Dr. Richard L. Sutton, Sr., Professor of Dermatology, has been made Professor Emeritus of Dermatology. Dr. C. C. Dennie, Professor Dermatology succeeds Dr. Sutton as Head of the Department of Dermatology.

Dr. Buford G. Hamilton has been promoted to Associate Professor of Obstetrics and Gynecology.

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*Stanford University  
School of Medicine*

The fifty-ninth course of popular medical lectures will be given in Lane Hall on April 4, 18, May 2, 16, 1941.

The lecturers and titles of their subjects are: "The Cyclotron in Cancer Research," John H. Lawrence, M.D.; "Cosmetics and Care of the Skin," Merlin T. R. Maynard, M.D.; "The

Newer Knowledge about High Blood Pressure," David A. Rytand, M.D.; "Changing Attitudes in Child Guidance," Hale F. Shirley, M.D.

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*Emory University  
School of Medicine*

The Whitehead Foundation recently announced two gifts to the Emory University School of Medicine. The sum of \$100,000 was added to the endowment given last year to create the Joseph B. Whitehead Professorship of Surgery and \$16,500 was given for expenditure during the current year. The total endowment of the Department is now \$350,000.

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*University of Mississippi  
School of Medicine*

The school has received a gift of \$7,500 for books and periodicals for our library. This is to be used over a period of three years, \$2,500 each year, the first instalment of which is now available. This money cannot be spent for anything except books and periodicals.

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*Baylor University  
College of Medicine*

Dr. Calvin R. Hannah, professor of obstetrics since 1908, died December 16, 1940, after a brief illness.

Dr. Warren E. Massey, associate professor of obstetrics has been appointed acting chairman of the department.

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*University of Buffalo  
School of Medicine*

The late DeWitt Halsey Sherman, for many years professor of pediatrics, bequeathed to the university a sum of money for the erection of a new medical building, and his widow, Jessica Anthony Sherman, has added to the sum sufficient to make the total about a half a million dollars. The will provides that if a building has been constructed by the time the funds become available, the money shall be placed in trust for the endowment of teaching.

Dr. Sherman, a graduate of the University of Buffalo, died in February 1940.

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*Columbia University  
College of Physicians and Surgeons*

Dr. Alan DeForest Smith, clinical professor of orthopedic surgery has been appointed professor. He succeeds Dr. Benjamin P. Farrell, who retired June 30. Dr. Smith also succeeded Dr. Farrell as surgeon in chief of the New York Orthopedic Dispensary and Hospital.

Dr. Harry Stoll Mustard, Director of the DeLamar Institute of Public Health, has been appointed Editor-in-Chief of the American Journal of Public Health.

December 17th, Dr. Henrik Dam, Associate Professor of Biochemistry, University of Copenhagen, delivered a lecture at the College of Physicians and Surgeons on "Vitamin K—A general survey of its biochemistry and clinical application."

Professor Lancelot Hogben, F. R. S., Regis Professor of Biology, Aberdeen University, delivered a lecture to the faculty and students at the College of Physicians and Surgeons on February 18th. The title of his lecture was "Medical Genetics — Methods and Problems."

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*Bowman Gray School of Medicine  
of Wake Forest College*

Appointment of three new members of the faculty to open in Winston-Salem next fall, has been announced. Dr. Tinsley R. Harrison, associate professor of medicine, Vanderbilt University School of Medicine, Nashville, Tenn., has been appointed professor of medicine. Dr. Wingate M. Johnson, Winston-Salem, will be professor of clinical medicine and Dr. A. deTalma Valk, Winston-Salem, professor of clinical surgery has been on the board of trustees of Wake Forest College for twenty years and is now president of the board. Dr. Valk is chief of the surgical staff of the North Carolina Baptist Hospital, Winston-Salem.

*St. Louis University  
School of Medicine*

Edward A. Doisy, Ph.D., professor of biochemistry, has been awarded the Willard Gibbs Medal for 1941. The medal is awarded annually by the Chicago section of the American Chemical Society. Dr. Doisy has been active in the study of Vitamin K. He was honored with the gold medal of the St. Louis Medical Society in 1935; Philip A. Conné Medal, Chemists Club of New York, 1935, and the St. Louis Award in 1939. He was a member of the League of Nations Committee on Standardization of Sex Hormones in 1932 and 1935.

Dr. Percy H. Swahlen, associate professor of gynecology and obstetrics, died in December, 1940, of coronary thrombosis.

♦ ♦

*Georgetown University  
School of Medicine*

Dr. Edward J. Cummings, associate professor of clinical ophthalmology, has been promoted to professor. Other promotions include Dr. William McC. Ballinger to associate professor of gastroenterology and Dr. Edgar W. Davis to professor of clinical surgery.

♦ ♦

*University of North Carolina  
School of Medicine*

The alumni association of the college recently presented to the university a portrait of Dr. Isaac H. Manning, Kenan professor emeritus of physiology and former dean of the school. Dr. William Raney Stanford, Durham, a former student under Dr. Manning, made the presentation and President Frank P. Graham accepted for the university.

♦ ♦

*Medical College of Virginia*

Doctor E. M. Landis, professor of medicine at the University of Virginia Medical School, will deliver the annual Sigma Zeta lecture on Wednesday, March 12, 1941, in the Baruch Audi-

torium of the Egyptian Building. His subject will be "Capillary Physiology and Fluid Balance."

Dr. Karl S. Blackwell, professor of otolaryngology, died in December, 1940.

Dr. John S. Horsley, Jr., associate professor of surgery, was killed in an automobile accident.

♦ ♦

*University of Chicago  
School of Medicine*

Dr. Dallas B. Phemister, professor of surgery and chairman of the department, has been designated the first holder of the newly created Thomas D. Jones professorship. The new chair was recently established to honor the late Thomas Davies Jones, pioneer Chicago attorney and industrialist, who died in 1930. Mr. Jones had been a major benefactor of the University of Chicago, its medical school and the Frank Billings Medical Clinic.

♦ ♦

*Johns Hopkins University  
School of Medicine*

Dr. Alfred Blalock, professor of surgery, Vanderbilt University School of Medicine and visiting surgeon at Vanderbilt Hospital, Nashville, Tenn., has been appointed professor of surgery and surgeon in chief to the Johns Hopkins Hospital. The professorship has been vacant since the retirement of Dr. Dean Lewis in the spring of 1939. Dr. Blalock graduated at Johns Hopkins in 1922. He was a member of the staff of the Johns Hopkins Hospital from 1922 to 1925 and resident surgeon at Vanderbilt Hospital from 1925 to 1927. He served as assistant professor of surgery at Vanderbilt from 1927 to 1930 and associate professor from 1930 to 1937, when he became professor.

♦ ♦

*Harvard Medical School*

A course of free public lectures on medical subjects opened January 5, with Dr. William B. Breed discussing "The Common Cold and How to Treat It."

Other lectures in the series are:

Dr. Joseph C. Aub, "Hormones and Children;" Dr. Henry C. Marble, "How Accidents Happen;" Dr. Alan R. Moritz, "Medical Aids to Justice;" Dr. Oliver Cope, "Modern Advances in Surgery;" Dr. Frederick F. Russell, "Medical Problems Presented by Selective Service;" Dr. Maurice B. Strauss, "Use and Abuse of Vitamins;" David B. Dill, Ph.D., "Fatigue and Health;" Dr. Carl W. Walter, "Transfusion of Blood and Blood Banks;" Dr. Reginald Fitz, "The Pathway of Medical Discovery."

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*University of Pennsylvania  
School of Medicine*

Dr. William Christopher Stadie, associate professor of research medicine, will receive the John Phillips Memorial Medal for 1941, at the annual meeting of the American College of Physicians in Boston, April 21-25. The award goes to Dr. Stadie in recognition of his "significant contributions to the knowledge of anoxia, cyanosis and the physical chemistry of hemoglobin and more especially for his recent studies on the subject of fat metabolism in diabetes mellitus." Dr. Stadie has been associate professor of research medicine at Pennsylvania since 1925.

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*University of Wisconsin  
Medical School*

Dr. Elmer L. Sevringhaus, professor of medicine, has received a government travel grant to visit South America, under the provisions of the Second Deficiency Appropriation Act of 1940, which provided funds for the exchange of distinguished cultural, professional and artistic leaders between the United States and the other American republics. Dr. Sevringhaus was to attend the Pan American Congress of Endocrinology in Montevideo, Uruguay, March 5-8, and deliver lectures there. From March 13 to 18 he will lecture in Buenos Aires and will return to the United States about March 23.

*Loyola University  
School of Medicine*

The appointment of Dr. Francis J. Braceland of Philadelphia as dean was announced March 8, 1941, by the Rev. Samuel K. Wilson, S.J., president of the university. Dr. Braceland succeeds Dr. Louis D. Moorhead who resigned recently. He will take office in June.

Dr. Braceland is a graduate of LaSalle College, Philadelphia. He received his M.D. degree from Jefferson Medical College in 1930, became a resident physician in the college hospital after completion of his medical course and in 1932 served as acting chief resident physician. During the next three years Dr. Braceland was assistant physician in the Pennsylvania Hospital for Mental and Nervous Diseases. He then was sent to Europe by the Rockefeller Foundation for further work in mental diseases and was a Rockefeller fellow in psychiatry at Burgholzli Anstalt, Zurich, Switzerland, and National hospital, Queens Square, London, during 1935 and 1936.

Dr. Braceland became clinical director of the Pennsylvania Hospital for Mental and Nervous Diseases in 1937, and from that time on has been associated with Dr. Edward A. Strecker of Philadelphia. He is now assistant professor of psychiatry in the graduate school of medicine of the University of Pennsylvania and associate professor of psychiatry in Woman's Medical College. He is also psychiatrist to the Pennsylvania, Philadelphia General, St. Joseph's, Misericordia, Fitzgerald-Mercy, and Babies' hospitals, and to St. Edmond's Home for Crippled Children, all in Philadelphia.

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*Yale University  
School of Medicine*

Dr. Francis G. Blake has been appointed as Dean for five years and a new professor of pharmacology, Dr. William Thomas Salter has also been appointed.

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## General News

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### *Nightingale Hospital New York City*

Architectural studies for the new cancer hospital and clinic to be constructed by the city at 163rd Street and Fort Washington Avenue, and to be known as the Nightingale Hospital, are nearly complete. The building will be ready for public service under the direction of the Hospital Department late in 1942 or early in 1943, and will cost about \$2,650,000.

The new hospital will be located on a plot of land to be conveyed to the city for one dollar, under an agreement among the city, the Presbyterian Hospital and Columbia University.

Beginning of construction awaits completion of architectural studies and the letting of the necessary contracts.

The building will take the place of old Cancer Institute on Welfare Island and the Cancer Clinic at 129 East Fifty-ninth Street. Both of those structures will be demolished and the city's radium treatment facilities moved to the Nightingale Hospital.

The new institution will have 315 beds and about 20 per cent of the structure will be devoted to laboratory space where original research will be conducted, in addition to the normal laboratory work of a modern hospital. There will also be an outpatient department.

The agreement signed by the Mayor provides that the hospital be staffed jointly by the city and Columbia University. The cost of construction and maintenance will be borne by the city.

The new hospital will be devoted to the care of patients suffering from malignant diseases and to research on related problems. Extensive research laboratories are provided and will be staffed by the University. The hospital will also be used for the instruction of medical students in the diagnosis and treatment of malignant diseases. It will

form an additional unit of the Medical Center, which now includes: the College of Physicians and Surgeons of Columbia University, the School of Dental and Oral Surgery of Columbia University, the DeLamar Institute of Public Health, the Presbyterian Hospital, the Sloane Hospital for Women, the Babies Hospital, the Institute of Ophthalmology, the Neurological Institutes, the New York Psychiatric Institute, the Vanderbilt Clinic, the Washington Heights Health Center of the New York City Department of Health, Bard Hall (the medical students' dormitory) and Maxwell Hall (the nurses' home).

Hospital Commissioner Willard C. Rappleye, said, plans to staff the new institution with carefully selected residents and also to have residents in other hospitals "rotated" through the Nightingale Hospital to give them reasonable experience with malignant diseases.

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### *American Public Health Association*

The Executive Board of the American Public Health Association announces the dates of the 70th Annual Meeting as October 14-17, 1941. The meeting place is Atlantic City, New Jersey. Headquarters for the meeting will be the Convention Hall. Residence headquarters will be the Hotel Traymore.

A New Jersey Committee responsible for entertainment, inspection trips and other local aspects of the meeting is being formed under the direction of Dr. S. L. Salasin, Health Officer of Atlantic City.

A number of related organizations habitually meet with the American Public Health Association. They will do so again at Atlantic City. Among them are the American School Health Association, the International Society of Medical Health Officers, the Association of Women in Public Health, the Conference of State Sanitary Engineers, the

Conference of Municipal Public Health Engineers, and the Conference of State Provincial Public Health Laboratory Directors.

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#### *New Journal on Medical Care*

The widespread need for more adequate medical service voiced by President Roosevelt in his recent message to Congress will now be dealt with in a special periodical, *Medical Care*, a quarterly. The new journal is a non-profit enterprise under the auspices of the Committee on Research in Medical Economics, Inc., 1790 Broadway, New York, with Michael M. Davis, Chairman of this Committee, as its Editor. Williams and Wilkins Company are the publishing agents. Its stated purposes are "to disseminate information concerning the economic and social aspects of medicine, to promote a scientific approach to the subject, and to stimulate practical action by the professions and the public in their common interest. The views and interests of the professions that furnish medical care and of the people who receive it are equally to be considered.

Among the articles in the first number are: "British Medical Arrangements for the Care of Air-Raid Victims," by Dr. George F. McCleary, formerly of the British Ministry of Health; "Preparedness through Fitness," by Dr. Nathan B. Van Etten, President of the American Medical Association; "A Health Program for California Farmers," by Von T. Ellsworth, Director of the California Farm Bureau Federation; "The Costs of Physicians' Services under a Voluntary Health Insurance Plan," by Helen Hershfield Avnet of the Group Health Cooperative, New York. One of the editorials urges adequate medical care for industrial workers in defense industries, as a means of promoting the productive efficiency which the nation needs. The federal government's organization up to date for dealing with health problems arising out of the national defense program is described in the department of Current Events, which also contains a re-

view of what 24 state medical societies did during 1940 concerning voluntary health insurance plans.

Future issues will include a Forum, open to signed expression of opinion by laymen and physicians; current news of legislation and private action in the field; and reviews of books, articles, and pamphlets concerning the economic and social aspects of medicine. The new journal has a group of about 45 Editorial Advisors including members of the medical and allied professions, social scientists, public administrators, and women representing the general public interest; and an Editorial Board composed of the following: Ernest P. Boas, M.D., New York; Samuel Bradbury, M.D., Philadelphia; Claude W. Munger, M.D., New York; John P. Peters, M.D., New Haven; Herbert E. Phillips, D.D.S., Chicago; Kingsley Roberts, M.D., New York; George Soule, New York; C.-E.A. Winslow, New Haven.

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#### *Training in Medical Librarianship*

The Orleans Parish Medical Society, New Orleans, announces a residency in medical library work. Requisite qualifications for appointment include college and library school training and an evidence of fitness for this type of work by personality and aptitude. The appointment carries a salary and is for a term of one year, subject to temporary extension by mutual consent. The work will be done in the library of the Orleans Parish Medical Society and the Rudolph Matas Medical Library of Tulane University, comprising a collection of more than sixty thousand volumes. The course is personally directed by the librarian in charge of the two libraries and proposes to cover a study of medical library administration used in these libraries and a comparison with varying methods used elsewhere. Any one wishing further information about the new residency should address the Librarian, Orleans Parish Medical Society, 1430 Tulane Avenue, New Orleans.

### *Catholic Hospital Association*

Under the patronage and by the invitation of His Eminence, Dennis Cardinal Dougherty, Archbishop of Philadelphia, the Officers and Executive Board of the Catholic Hospital Association of the United States and Canada announce that the Twenty-six Annual Convention of the Association will be held at Convention Hall Philadelphia, Pennsylvania, June 16th to 20th, 1941.

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### *Alpha Epsilon Delta*

The Ohio Alpha Chapter of this national honorary premedical fraternity, has established a \$50 prize contest to stimulate original work and creative writing among premedical students at Ohio State University. Dr. Hugh E. Setterfield, chapter adviser and professor of anatomy at the College of Medicine, is chairman of the awards committee and announced the establishment of the award. One-half of the prize is being provided by Dr. Leslie Bigelow, professor of surgery in the College of Medicine. The prize will be awarded at the June commencement for the best paper on any phase of study or research in the College of Arts and Sciences in its relation to preparation for the study of medicine.

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### *Ledyard Research Award Announced*

Dr. Robert S. Teague, an instructor in pharmacology at Tulane University of Louisiana School of Medicine, New Orleans, has been awarded the Lewis Cass Ledyard, Jr. Fellowship for medical research by the Joint Administrative Board of the New York Hospital and Cornell University Medical College. The award provides approximately \$4,000 annually for a young physician or surgeon demonstrating "fitness to carry on original research of high order."

Dr. Teague will engage in research on the action of the synthetic estrogenic substances which are chemical substitutes for the natural female sex hormones. The study is to determine the

effects on the body of these natural and synthetic hormones, and, particularly, whether the synthetic substitute is safe for general medical use.

A native of Montgomery, Alabama, Dr. Teague graduated from the University of Alabama, received a master's degree from Northwestern University and an M.D. and Ph.D. from the University of Chicago. Before his present appointment at Tulane he was engaged in teaching and research at Northwestern and Chicago universities.

The Lewis Cass Ledyard, Jr. Fellowship was established two years ago by Mrs. Ruth E. Ledyard in memory of her husband, a governor of the Society of the New York Hospital.

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### *Dr. Joseph Brennemann Retires*

After serving three years beyond the retirement age, Dr. Joseph Brennemann resigned, January 1, as chief of staff of the Children Memorial Hospital, a position he had occupied since 1921. He has been succeeded by Dr. Charles Anderson Aldrich, a member of the staff for twenty years. Born in Peru, Ill., in 1872, Dr. Brennemann graduated at Northwestern University Medical School in 1900. He has been professor of pediatrics at the University of Chicago, the School of Medicine, since 1921.

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### *Fellowship in Penal Psychiatry*

A fellowship in penal psychiatry under the Pennsylvania Plan for Intramural Training in Penal Psychiatry is available. The fellowship is provided by the Commonwealth Fund, will run two years and carries a stipend of \$2,400 the first year and \$2,800 the second year. Minimal qualifications specify a graduate physician not older than 35, having accredited internship and at least two years of acceptable psychiatric training.

Address inquiries to Dr. Philip Q. Roche, secretary of the committee on medicolegal fellowships, 255 South Seventeenth Street, Philadelphia.

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## Book News

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### *Rose & Carless Manual of Surgery*

Edited by William T. Coughlin, M.D., Professor of Surgery St. Louis University School of Medicine. American Edition (16th) from the 16th English edition by Cecil P. G. Wakeley and John B. Hunter, Lecturers in Surgery King's College Hospital Medical School. A William Wood Book: The Williams & Wilkins Company, Baltimore, 1940. Price, \$9.

This book is so well known and used so widely, that comment on its excellency as a textbook for undergraduate medical students is not called for. It is with deep regret and sorrow that attention is called to the untimely death of the editor of this American edition. His worth as a teacher is adequately reflected by this book.

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### *Fractures and Dislocations*

By Edwin O. Geckeler, M.D.; 2d Ed. A William Wood Book: The Williams & Wilkins Company, Baltimore. 1940. Price, \$4.

A complete yet simplified guide to the management of bone and joint injuries. There is one reliable method of treatment for the average fracture (including complicated and difficult cases) that will save the practitioner valuable time in an emergency. Follow-up treatment is considered.

The new edition of this book reflects the recent progress in traumatic surgery. Notable additions are the more detailed discussion of skeletal traction (essential in the case of fractures of the lower extremity) and of early care of compound fractures and traumatized soft tissue.

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### *Electrocardiography in Practice*

By Ashton Graybiel, M.D.; Instructor in Medicine, Courses for Graduates, Harvard Medical School, and Paul D. White, M.D., Lecturer in Medicine, Harvard Medical School. W. B. Saunders Company, Philadelphia. 1941. Price, \$6.

A presentation of 272 electrocardiograms illustrating various heart lesions with brief description of each. They illustrate normal variations, disorders of rhythm, etiologic types of heart disease; 130 are presented in heterogeneous fashion for practice in interpretation by students. The selection has been made carefully as the atlas is intended to be a teaching and learning aid—which it is. Students as well as practitioners will find the atlas most useful.

### *Williams's Obstetrics*

By H. J. Stander, M.D., Professor of Obstetrics and Gynecology, Cornell University Medical College. 8th Ed. D. Appleton-Century Company, New York. 1941.

Completely rewritten; little of the original text remains. It is now Stander's textbook in obstetrics and is based on his many years of experience as an obstetrician and a teacher. He expresses his own views clearly. The work is strictly up to date and can be recommended as a good student text, although somewhat large.

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### *The Pharmacological Basis of Therapeutics*

By Louis Goodman, M.D., and Alfred Gilman, Ph.D., Assistant Professors of Pharmacology and Toxicology, Yale University School of Medicine. The Macmillan Company, New York. 1941. Price, \$12.50.

Three objectives have guided the author in writing this book: (1) the correlation of pharmacology with related medical sciences, (2) the reinterpretation of the actions and uses of drugs from the viewpoint of important advance in medicine and (3) the placing of emphasis on the applications of pharmacodynamics to therapeutics.

Its approach to the study of pharmacology and therapeutics is completely new, for it aims at a correlation of basic physiological principles with pharmacodynamics and of pathological physiology of disease with the actions and uses of drugs. Its scope is so much wider than that of any previously existing text that it will serve the student throughout his medical course.

Every recently introduced drug of recognized value is completely discussed, as well as the newest information concerning the actions and uses of the older established drugs. All this material is organized so that it is readily accessible, with drugs grouped on a basis of therapeutic uses, and thoroughly indexed with entries for both drugs and diseases.

One hundred and twenty-six figures and sixty-seven tables are included. In the appendix the principles of prescription writing are clearly set forth.

The book is bulky and it is expensive, but it accomplishes what it set out to do—make treatment alive and useful, applied with understanding. Pharmacology is made a practical subject not a mere science, forgotten before the student has a need for it in his clinical clerkship. The authors must be complimented on their work.

*Methods of Treatment*

By Logan Clendenning, M.D. and Edward H. Hashinger, M.D., Clinical Professors of Medicine, University of Kansas School of Medicine—with chapters on special subjects contributed by well known authorities in the fields covered. 7th Ed. The C. V. Mosby Company, St. Louis. 1941. Price, \$10.

The book gives ample evidence of having undergone a careful revision. Many chapters have been rewritten entirely; new contributors have written some of them; new chapters have been added; some have been dropped. Much new material has been added thus bringing the book up-to-date. It is too well and favorably known to call for special comment.

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*Anus: Rectum: Sigmoid: Colon: Diagnosis and Treatment*

By Harry E. Bacon, M.D., Clinical Professor of Proctology, Temple University School of Medicine; Associate Professor of Proctology, Graduate School of Medicine, University of Pennsylvania. Introduction by Dr. Wayne Babcock, Professor of Surgery, Temple University School of Medicine and Foreword by J. P. Lockhart Mummery, London. 2nd Ed. J. B. Lippincott Company, Philadelphia. 1941. Price, \$8.50.

Well written; easily understood; based on the author's personal work. Descriptions of procedures are lucid; easily followed. Well illustrated; good bibliography at end of each chapter. Subject is covered well. Recommended for teaching use.

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*An Introduction to Dermatology*

By Richard L. Sutton, M.D., Emeritus Professor of Dermatology, and Richard L. Sutton, Jr., M.D., Assistant Professor of Dermatology, University of Kansas School of Medicine. 4th Ed. The C. V. Mosby Company, St. Louis. 1941. Price, \$9.

Profusely and well illustrated, which with the numerous prescriptions given for treatment gives this work a value which will be appreciated by medical students and practitioners alike. It makes diagnosis and treatment comparatively simple and satisfactory. He who wants to know about diseases of the skin will find the extensive bibliography useful.

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*MacLeod's Physiology in Modern Medicine*

Edited by Philip Bard, M.D., Professor of Physiology, Johns Hopkins University School of Medicine, with the collaboration of nine well known physiologists, biochemists and

pharmacologists. 9th Ed. The C. V. Mosby Company, St. Louis. 1941. Price, \$10.

A deservedly popular student textbook because it considers especially the needs of the student. The same contributors have collaborated in bringing out this edition. New chapters have been added; others combined; many completely rewritten; other expanded. The text is up-to-date. Sixty-six pages of bibliography in very fine print could, perhaps, have been omitted from a textbook designed, primarily, for the use of students. It adds bulk but does not detract from the value of the text material. Research workers and those who want to know more and delve deeper will appreciate this bibliography.

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*A Textbook of Clinical Pathology*

Edited by Roy R. Kracke, M.D., Professor of Pathology, Bacteriology and Laboratory Diagnosis, and Francis P. Parker, M.D., Associate Professor, Emory University School of Medicine. 2nd Ed. A William Wood Book: The Williams and Wilkins Company, Baltimore. 1940. Price, \$6.

A good textbook. Places emphasis on single procedures selected as being superior in their field and described in detail. Fourteen experienced teachers have collaborated in producing the book. Results of procedures are interpreted clearly and applied to diagnostic problems of daily practice, hence a good book for the practitioner as well as the medical student.

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*A History of Medicine*

By Arturo Castiglioni, M.D., formerly Professor at the University of Padua; Research Associate in the History of Medicine in Yale University. Translated from the Italian and edited by E. B. Krumbhaar, M.D., Ph.D., Honorary President of the American Association of the History of Medicine. Alfred A. Knopf, New York. 1941. Price, \$8.50.

Physicians interested in medical history—and the number is growing larger year by year—will find this an interesting addition to other books on the subject. It differs from others mainly in one respect—it stresses the part taken by Italy in the history of medicine, the author of the book being an Italian and Professor of History of Medicine at the University of Padua, one of the oldest, if not the oldest, university in the world. The translator has omitted many details of local Italian interest in order to give space to items of importance in American and British medicine. Beginning with the origin of medicine in prehistoric times and in primitive people it carries on into the twentieth century. The rise of universities and faculties of medicine is presented in tabular form.

A 50 page bibliography, listed by subjects adds greatly to the interest which medical historians will find in the book. More than 400 excellent illustrations add to the value of the text.

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#### *Diseases of the Nervous System*

By F. M. R. Walshe, M.D., University College Hospital, London, England. A William Wood Book: The Williams and Wilkins Company, Baltimore. 1940. Price, \$4.50.

A "multum in parvo;" written in simple language, dealing with the more common affections of the nervous system, for the purpose of making it a textbook which will be useful to the student. It is not for the specialist.

♦ ♦

#### *A Textbook of Clinical Neurology*

By J. M. Nielsen, M.D., Associate Professor of Clinical Medicine (Neurology) University of Southern California School of Medicine. Paul B. Hoeber, Inc. Medical Book Department of Harper and Brothers. 1941. Price, \$6.50.

Designed as a purely practical clinical guidebook. Concise in its presentation, clear in its descriptions, Dr. Nielsen's contribution is ideal as a teaching text or for the practitioner's work shelf. Conforming to the clinical method, basic anatomy and physiology are interwoven with the clinical discussions where needed to show the rationale of diagnosis or treatment, instead of being treated in separate chapters. New treatments, including the most recent ones with sulfonamide, drugs, and vitamins, are specifically presented, and all recommendations are based on extensive clinical experience. Among the important subjects covered in detail might be mentioned cerebral localization, intracranial complications of otitis media, sciatic and related pains, the avitaminoses, etc. Nothing has been overlooked to make this a comprehensive text.

♦ ♦

#### *Diseases of the Digestive System*

Edited by Sidney A. Portis, M.D., Associate Clinical Professor of Medicine, Rush Medical College. Lea & Febiger, Philadelphia. 1941. Price, \$10.

This work offers for the first time a comprehensive approach to the problem of gastroenterology. It places especial emphasis on those contributory factors which produce gastrointestinal symptoms and at the same time it offers a full discussion of each of the diseases of the gastrointestinal tract, their diagnosis and their treatment. The rapid advances in this field have revealed many new diagnostic aids and have opened new

avenues of approach, all of which are presented in this work.

The book presents a broader knowledge of the entire field of gastroenterology than is obtainable elsewhere. Many topics are covered for the first time in a work of this character. They include the gastrointestinal manifestations of organic neurologic disease, of endocrine disease and of diabetes, gout and arthritis. The contributions on the history of gastrointestinal diseases, on the anatomy and on the normal and abnormal physiology lay the foundations for a clear understanding of the diseases of the digestive system.

♦ ♦

#### *The Extraocular Muscles:*

A Clinical Study of Normal and Abnormal Ocular Motility—by Luther C. Peter, M.D., Professor Emeritus of Diseases of the Eye, Graduate School of Medicine, University of Pennsylvania. 3rd Ed. 1941. Price, \$4.50.

Every effort has been made to simplify the subject and to facilitate the grasp of the underlying principles. Each subject is discussed as an entity. It is the author's objective to offer a practical working knowledge of normal and abnormal ocular motility unconfused by those newer proposals which have not yet passed beyond the controversial period.

There is a brief section on the essentials of orthoptic training which gives the ophthalmologist and the technician a guide to the basic principles in the intricacies of orthodox methods. To this edition has been added the author's technique for the resection of muscles required in surgery for retinal separation. The book offers an ample and varied technique that covers every contingency in its field.

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#### *A Laboratory Manual of Physiological Chemistry*

By D. Wright Wilson, M.D., Benjamin Rush Professor of Physiological Chemistry, University of Pennsylvania. 4th Ed. The Williams and Wilkins Company, Baltimore. 1941. Price, \$2.50.

Many minor changes have been made to make the manual more satisfactory to the student. Experiments on saliva have been augmented and modified. A short discussion of photoelectric colorimetry has been included.

♦ ♦

#### *Clinical Pellagra*

By Seale Harris, M.D., Professor Emeritus of Medicine, University of Alabama, assisted by Seale Harris, Jr., M.D., Formerly Assistant Professor of Medicine, Vanderbilt University. With a foreword by E. V. McCollum, Ph.D., Professor of Chemistry School of Hygiene and Public Health, The

Johns Hopkins University. The C. V. Mosby Company, St. Louis. 1941. Price, \$7.

The authors and their assisting collaborators have given a complete discourse on pellagra from its earliest history to the present day. It is complete in every detail, leaving nothing unsaid. The book is a classic and can be accepted as the last word on this well known disease.

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*The Therapy of the Neuroses and Psychoses*

A Socio-Psycho-Biologic Analysis and Resynthesis—by Samuel H. Kraines, M.D., Associate in Psychiatry, University of Illinois College of Medicine. Lea & Febiger, Philadelphia. 1941. Price, \$5.50.

This work will aid the physician, who has not specialized in psychiatry, in dealing with his psychoneurotic patients. It covers the principles of treatment the practicality of which is demonstrated by references to over two hundred cases from the author's own experience. These cases are all of the usual type of patient that fills the average physician's office. After a socio-psycho-biologic analysis followed by a resynthesis, the author demonstrates that many such cases can be greatly improved or cured by the procedures which he has here described.

This is an eminently practical book designed to give specific aid for specific neurotic symptoms. An excellent index facilitates the location of the various symptoms and of their treatment. This book will be of inestimable value to every physician, for all physicians, whatever their specialty, are confronted with the problem of treating the neurotic patient.

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*Foreign Bodies Left in the Abdomen*

By Harry S. Crossen, M.D., Professor of Gynecology, Washington University School of Medicine, and David F. Crossen, LL.B., Washington University School of Law. The C. V. Mosby Company, St. Louis. 1940. Price, \$10.

It is not the purpose of this book to cause embarrassment to the surgical profession—but to help the surgeon prevent this serious accident. Not only does the book emphasize to surgeons the danger of occurrence of the accident of leaving a foreign body in the abdominal cavity, but works out the best plan of treatment for the various types of such cases—calls attention to the difficulties of avoiding such accident—and makes an epochal contribution to the critical study of the problem of prevention.

Cases of lost sponges are first considered. These cases are divided into groups for study, and details are given in order to bring out the facts needed for a comprehensive consideration of the subject and the problems involved. Next the pathology of the sponge cases is considered—along with

special conditions encountered in the various types of cases. The consideration then moves on to the diagnosis and treatment of these cases.

Instruments, drains, and other objects left in the abdomen are next considered. Finally the legal problems involved are discussed by an attorney, Mr. David F. Crossen. In this section of the book cases, decisions, and responsibilities are all fully discussed.

\* \*

*Manual of Clinical Chemistry*

By Miriam Reiner, M.Sc., Assistant Chemist to the Mount Sinai Hospital, New York, with an introduction by Harry Sobota, Ph.D., Chemist to the Mount Sinai Hospital. Interscience Publishers, Inc., New York, 1941. Price, \$3.

A good book for interns and laboratory technicians.

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*Handbook of Anaesthetics*

(Formerly Ross and Fairlie). Revised by R. J. Minnitt, Lecturer in Anaesthesia, University of Liverpool, England. 5th Ed. A William Wood Book; The Williams and Wilkins Company, Baltimore. 1940. Price, \$4.

Covers the entire field of anesthesia and anesthetics well. A good text for the teaching of anesthesia.

## DISEASES OF THE DIGESTIVE SYSTEM

Edited by SIDNEY A. PORTIS, B.S.,  
M.D., F.A.C.P. Associate Clinical  
Professor of Medicine, Rush  
Medical College of the Uni-  
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Octavo, 952 pages, illustrated with 176  
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This new work is unique in that it offers for the first time a truly comprehensive approach to the problem of gastroenterology. It emphasizes those contributory factors which produce gastrointestinal symptoms and at the same time offers a full discussion of each of the diseases of the gastrointestinal tract, their diagnosis and their treatment. The fifty contributors have been carefully selected.

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